

*Includes EcoTax

Summer

Number 106

December 1998 - February 1999 \$4.50*

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NZ \$5.95 inc GST

— SUSTAINABLE LIVING AND PLANET CARE —

EARTH GARDEN

— FOR BUSH OR CITY ALTERNATIVES —

**Build Your
Own \$300
Water Tank**

**Maureen's
Strawbale
House - see
page 12**

**Mudbrick
Cottage
In Just
30 days**

**Build Your Own
Solar Tracker**

**Jose's 20
Island Years**

**The Great Solar
Desert Escape**

**Pomegranates
A Beginner's
Permaculture
Vegie Patch**

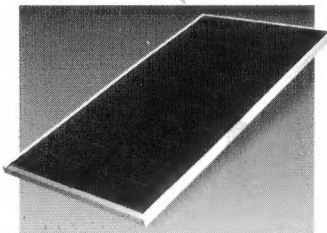
Jackie French & much more . . .

Print Post No: 346001/00001 ISSN 0310-222X

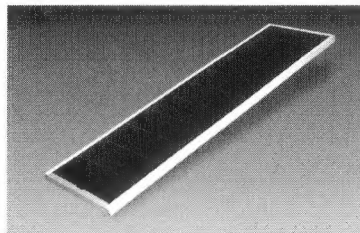
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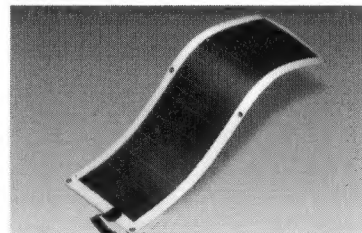
US-64



US-32



USF-11



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SPECIFICATIONS:

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Model	US-64	US-42	US-32	US-21	US-11	US-5	US-3
Rated Power (Wp)	64.0	42.0	32.0	21.0	10.3	5.0	2.68
Vmp (V)	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Imp (A)	3.88	2.54	1.94	1.27	0.62	0.30	0.33
Voc (V)	23.8	23.8	23.8	23.8	23.8	23.8	12.0
Isc (A)	4.80	3.17	2.40	1.59	0.78	0.37	0.4
Length (mm)	1,366.1	928.3	1,366.1	928.2	491	491	286
Width (mm)	741.2	741.2	382.7	382.7	383	205	205
Depth (mm)	31.8	31.8	31.8	31.8	22	22	22
Weight (kg)	9.17	6.27	4.8	2.99	1.63	1.13	0.77

FLEXIBLE MODULE

Model	USF-32	USF-11	USF-5
Rated Power (Wp)	32.0	11	5.00
Vmp (V)	16.5	16.5	16.5
Imp (A)	1.94	0.62	0.30
Voc (V)	23.8	23.8	23.8
Isc (A)	2.4	0.78	0.37
Length (mm)	1,429.4	553.79	553.79
Width (mm)	424.4	424.4	246.6
Depth (mm)	5.02	5.02	5.02
Weight (kg)	2.14	0.91	0.54

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Front Cover: The strawbale mansion! Maureen Petersen (left) reviews plans of her brand-new Tuscan-style strawbale house with her architects, Per and Helen Bernard of Imagine Strawbale Constructions at Daylesford in central Victoria. Maureen's Daylesford home, The Flying Pig, has bed & breakfast accommodation upstairs, and visitors are bowled over by the warmth and peaceful ambiance of her super-insulated residence. Strawbale building continues to grow in

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popularity and there are now legal strawbale dwellings approved or built in every State. Read about The Flying Pig on page 12.

For more information about strawbale see recent back copies of *Earth Garden*, read the strawbale 'bible' (*The Straw Bale House* book, or subscribe to the excellent US journal, *The Last Straw*. If you have access to email, you can contact Catherine Wanek and Pete Fust, the wonderful new publishers of *The Last Straw* (at: thelaststraw@zianet.com).

Photograph by Sandy Scheltema.

EcoTax: This issue's EcoTax will go to Environs Kimberley, the Broome-based community environment group fighting to save the Kimberley region of WA from destructive river-dam and chemical cotton-growing proposals. See page 30 for information about their wonderful work.



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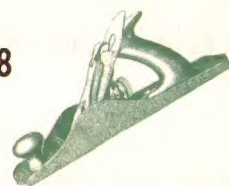
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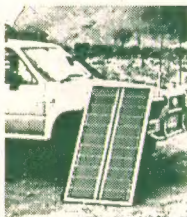
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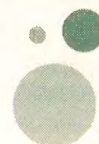
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Founded by Keith & Irene Smith, 1972.

EARTH GARDEN is Australia's original journal of sustainable living and alternatives. It is a forum of practical ideas, shared knowledge, sources and a guide to alternatives to high-consumption lifestyles.

It's about putting a roof over your head, growing your own food organically, aiming for appropriate, renewable home energy systems and surviving — and thriving — in the city or the bush, with the inner changes which follow when you're in harmony with Nature.

EcoTax: each issue we donate a portion of the cover price to a community group involved in tree planting or conservation projects to help balance the use of the partly recycled paper used for printing *Earth Garden*. We would like to see all publishers pay an EcoTax.

Earth Garden is printed with soya-based inks on paper made from plantation-grown timber. *Earth Garden* is a member of the Audit Bureau of Circulations.

Our World Wide Web page is on the Internet at: <http://www.earthlink.com.au/earthgarden>

Contributions to *Earth Garden* are welcome — sharing information and experiences with other readers strengthens the network of Earth Gardeners. Photos, illustrations and diagrams are important. Please write first with your story idea. Remember subscribers are sustainers — for subscription details see page 88.

We welcome advertisements appropriate to the aims and ideals of *Earth Garden*, but reserve the right to refuse ads at our discretion. Contact us for display rates.

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(We don't have the resources to staff telephone enquiries: please write or fax.)



Beyond The Bitumen

Dear readers,

Welcome to the summer issue of *Earth Garden*. In September, Victorians came face to face with the pointy end of where their resources come from when a massive gas explosion killed two workers and cut the gas supply to 1.4 million homes. Most Australians know about the gas crisis, but it wasn't as much of a crisis for many older Victorians — who'd lived through the Depression and World War Two — as it was for younger urban people who've always had water, gas, electricity, sewerage, and other such luxuries freely available. Some people call these services necessities, but it's hard to see it that way when we're the first generation in the history of human development to have them 'on tap'. Are they really necessities if the previous half a million years of humanity haven't had them so easily?

It's easy to get used to comfort, and I'm no exception, even though our family escaped the gas crisis completely unscathed. Solar collectors heat our water for most of the year, and the wetback in the wood stove heats it for the rest of the winter. Solar-electric panels provide our electricity, and we heat our home from one, efficient wood heater. We do have one gas ring, and that boils the billy when we're in a rush to get Harry to school in the mornings (oh, how I hate that mad rush).

I suppose the gas crisis has made many people reflect on how they live, and the services they take for granted. Just as the Sydney water crisis, the Auckland and Queensland power crises, and a swag of other big-city service breakdowns make us contemplate our lifestyles.

One of the main reasons I left Melbourne — to live a more self-sufficient lifestyle in the bush — was that I didn't want to depend on large governments, large companies, large unions or large polluting factories for my water, power, food, or other essentials. Our family is not self-sufficient and we'll never really want to stay up all night making our own olive oil, gas, matches, baking soda, or the other things we buy rather than make. We do, however, want to minimise our home's energy use, create a measure of self-reliance and tread more gently on the planet. That means we're always interested in sustainable living ideas, growing more of our own food, or embracing any of the methods and projects that *Earth Gardeners* write about and do.

Whenever the Australian economy goes into another recession (have we really emerged from the previous one?) I usually get letters from retrenched executives who tell me that they've forgotten how their granny used to grow her own vegies and look after the chooks, but

that they've got plenty of time on their hands to re-learn the methods. There's nothing like an energy crisis or a recession to focus the mind!

I think most *Earth Gardeners* will survive economic downturns and energy crises in a more capable frame of mind than the rest of the population. That's not a cause for smugness, but in some ways it's a vindication of the values *Earth Garden's* been promoting since 1972. We may be able to survive economic downturns, but it's hard at the moment at home with environmental downturns: every morning we wake up to the sound of massive trees crashing to the ground 150 metres from our house, as another coupe in the Wombat Forest is logged for woodchips and sawlogs. Sometimes I wonder why native animals like tuans, powerful owls, gliders, wombats and koalas — who are territorial and can't simply move to a new area — are always sacrificed for short-term jobs in the native logging industry, when Australia has enough plantation timber from tree farms (1.1 million hectares) to provide our timber needs as a transition to a plantation base of truly mixed species.

We're sorry to announce that our sub-editor of three years, Michael Uniacke, has finished at *Earth Garden*. Michael has been a witty and fun member of the *Earth Garden* team, and we're disappointed to see him go. In his new job in Bendigo, Michael won't have to turn back for home because the snow's too thick to let him get to work! We had a fun farewell dinner for Michael at the Harvest café in Daylesford recently, and he knows how much we all appreciated his work.

In another bit of housekeeping, I'd like to ask for help in finding a furnished house in Broome to rent or swap. Next year, from mid-May to mid-August, Judith, the children and I want to rent a house in Broome, or swap it with Broome people who may wish to live in our house an hour from Melbourne. If you know anyone who may be interested, please let us know on (03) 5424 1399 or in writing to: "Alan's Broome daydream", RMB 427 Trentham, 3458!

In this issue we have some classic, practical articles about topics that will help many people take a step closer to achieving a sustainable lifestyle. Whether it's the encouragement to build an energy-efficient strawbale house, or making your own solar tracker or rainwater tank, or simply working out how to increase the harvest from one tomato plant, I hope you find the summer issue as satisfying as it has been for us here at *Earth Garden* to produce.

Happy reading,

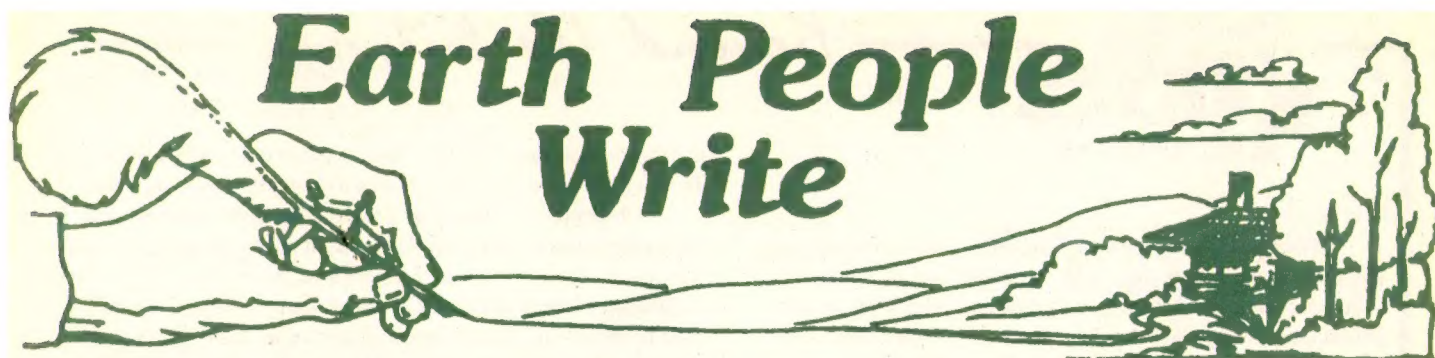
Win With Your Solar Story . . .

The next issue of *Earth Garden* will have a special section of articles dealing with solar power — a bit like the way the March-May 1998 issue dealt with wind power. We will have a range of articles looking at how people live in solar-powered homes, how they assembled their systems, the cost of components, new developments in the industry, and even homemade solar devices.

We would love to receive contributions from solar-powered *Earth Gardeners*. Please send us 500 words and some photographs of your solar system, telling us how you did it, what it cost, and what you like and don't

like about it. We'll publish the most interesting contributions, and award a \$100 book voucher for purchases from 'The Good Life' Book Club to the article about the best homemade solar device — whether it's a hot water unit, a tracker, a monitoring set-up, or something way out and whacky that we can't imagine.

The deadline for contributions is 15 January 1999 — so get writing! It doesn't have to be a masterpiece; just imagine you're writing a letter to a friend on the other side of the world . . . and mail it to 'Solar Special', *Earth Garden*, RMB 427 Trentham, Victoria, 3458.



Earth People Write

Earth People Write is an open forum. The views expressed in letters from readers do not necessarily reflect the opinions of *Earth Garden*. Letters are always welcome, but please keep them concise.

No need to go rural for self-sufficiency

Hello all,

I'm a firm devotee of *Earth Garden*, and never fail to glean some new ideas or methods from each issue. Sadly I've noticed that many who write in feel trapped in suburbia and dream of a rural block, and for many it will remain just a dream. Self-reliance and sufficiency is not only possible in suburbia, but in some cases is a better choice for some of advancing years, for children with their own ideas of the ideal lifestyle (like movies and coffee shops), or those anchored by a career. There is also a school of thought that believes dissecting remaining rural areas into smaller, less-productive parcels will quicken the decline of our agricultural productivity, and clearing holes in untouched bushland for housing is in my book the act of selfish vandals.

I grew up in Northcote (a suburb of Melbourne) during the 60s, a time of large-scale Greek and Italian migration. These people saw their suburban blocks for what they were — a quarter acre of workable land. Grapes, fruit, vegies and fowl soon replaced back lawns, were laid out in a very aesthetic fashion, and became a focal point for family gatherings. If we took this example and coupled it with a flowering and fruiting front yard of natives, that would provide habitat for indigenous species that wouldn't require the drudgery of the week-end mowing of the lawn and clipping of the hedge. And face it — if you can't do it on a quarter-acre, you won't cut it on ten acres either. Make the best of what you have.

A R McKenzie, Albury, NSW.

We need a good water filter

Dear Earth Garden,

We have a small problem when we pump water from the creek when it stops flowing in the dry periods. The water from

the watering hole gets a bit murky and light brown. We use this water for our bath and laundry needs and not for drinking. I wanted a simple inexpensive water filter, so I looked up EG 20 for the information on a simple water filter (page 8), and in EG 85, information on hydro power systems (pages 50 to 59). However they did not help with my particular problem. Any ideas or suggestions would be greatly appreciated.

Robert Scope, 'Rosedale', Weabonga Road, Weabonga, NSW, 2340.

Our dream builder

Dear Earth Garden,

Your magazine provides me with a tenuous hold on a country dream in the middle of suburbia. When our kids are independent, we will head for the country and put into practice all the fantastic ideas we have learned from reading *Earth Garden*. At the moment our backyard is too small even to have a couple of chooks. Our only bit of sunshine is on the garage roof, which we have converted into a garden. There are 150 tagasaste plants and 100 olive trees up there, which we are looking after until they are big enough to be planted out at our little farm in Towamba. Until we can realise our dreams we will just have to be satisfied with living through other people's! I look forward to the next issue of our dream builder.

Liz Hrouda, South Yarra, Vic.

Cool ideas for a cool cupboard

Dear Earth Garden,

I write this while sitting on a plane over the Murray Basin. This is my first chance to read *Earth Garden* in months. We are building a mudbrick home in northern New South Wales, and plan to include a cool cupboard. We have already put a 100 millimetre pipe under the slab for the cup-

board, and were hoping to get ideas and feedback from others who have already made a cool cupboard. We plan to use it for fruit together with vegies, bread, and so on, and have a small gas fridge for highly perishables such as dairy products. Ideas on ventilation, shelving and similar would be appreciated.

Robyn and Paul Berrington, Wilsons Creek, NSW.

Recycled copier paper trial

Dear Earth Garden,

Readers may be interested in a trial of recycled copier paper currently running at a number of Australia Post outlets in New South Wales and Melbourne. Unlike all other recycled copier papers on sale in Australia, Canon 100 is made from 100 per cent post-consumer waste. It is laser-guaranteed and retails for \$8.70. Added reasons for buying Canon are the use of old-growth pulp in all Australian-made virgin copier paper, and the need to avoid Indonesian-made paper, described by the Boycott Woodchipping Campaign as 'an environmental nightmare'.

The trial Australia Post outlets are:
Greater Melbourne area: — Collins St East, Collins St West, East Melbourne, GPO Melbourne, Ringwood; **Greater Sydney area:** Blacktown, Chatswood, Haymarket, Liverpool, Milperra, Minto, Parramatta, St Leonards, Silverwater, Sydney GPO, Sydney South, Taren Point, Wetherill Park; **Rural NSW:** Byron Bay, Dubbo, Lismore, Newcastle, Tamworth, Wagga Wagga; **ACT:** Canberra GPO. I feel it is vital to make this trial a success, so that it can be extended to Australia Post shops over a wider area.

Many community and environment-orientated organisations in Lismore are now buying Canon 100 regularly. Please ask your local community centre and environ-

ment centre to use this product to make the trial a success everywhere.

Martin Oliver, Lismore, NSW.

Many share EG values

Dear Alan,

Take heart, there are many left in society who value the basics of your editorial (EG 102) and yet ain't *Earth Garden* readers — I am one! (Well, until I read this issue.)

Eleven years ago we left our brick-veneer cottage on a quarter-acre block to pioneer seven acres of sclerophyll forest, storm-water creek and two cleared acres. There was no electricity, water, sewerage, garbage collection and, of course, no house. We lived in a caravan, and although Lesley bought an *Earth Garden* about once a year, I was too busy building on the weekends and commuting to work during the week to read them. Having just received a redundancy payout on Christmas Eve, I now have time to develop our land so that we can live from it. I also have time and the inclination to read *Earth Garden*. It's terrific! But for over 30 years I have held the same values that you describe, and there are in fact many other 'non-readers' around.

Paul Hulbert, Kurrajong Hills, NSW.

Two sewing machines

Dear Alan,

I have two sewing machines that need good homes. One is manual, which sews forwards and backwards, and is very useful in homes trying to conserve electricity. It is a Singer and in good working order. The other is a Victor and is run by electricity. It was overhauled and fitted with a new foot pedal and light. It only does basic sewing, but is very attractive to behold!

Both machines have now been superseded and I have no further use for them. In ten year's time they will be antiques, but I can't store them for that long! If any readers would like one, they will have to collect it. I can be contacted on (08) 8337 0083.

Jo Hill, Rostrevor, SA.

Many treading gently

To everyone at Earth Garden,

Hi, I have looked forward to writing this letter for months and here I am at last. We moved to Heathcote, Victoria, three weeks ago and will be starting to build our new home here in a week or so. We have 7-1/2 acres here which was covered with China bush (tea-tree scrub), a very invasive fire hazard in the district. It's a real job trying to get rid of it, but we have been pulling it out and cutting it down for the past two years.

I've been growing gums, wattles and other natives from seed to plant on our block. They are mostly local varieties, so hopefully they will grow without too many hassles when we plant them in the Autumn. I don't know if I'm right, but I'm hoping that the trees will help control the scrub. At least they will have competition. I love reading your very info-packed magazine. I've learnt so many helpful hints. I hope you keep up the good work. There's so much more I need to learn yet. Actually reading all the letters that people send in is really great too. Obviously I'm not the only one who is interested in trying to tread gently for the future of our children and our beautiful country.

Penny & John Evans, Heathcote, Vic.

We love our animals too much

Dear Editor,

I have been buying *Earth Garden* for about the past seven years and I have also bought books. We have been living on our eight acres for two years now, and have 23 chooks, five heifers and two steers. We hope to get strong enough one day to send the steers to market to make a living, but we love our animals too much. Has anyone any helpful hints? I'd hate to sell up and live back in the city. Thank you for such a helpful magazine and to your readers who send in very helpful hints.

Jenny Reeves, c/- Stony Creek Post Office, Stony Creek, Vic, 3957.

EG sustains me

Dear Earth Garden,

Many thanks for providing hours of entertaining, informative and refreshing reading in EG 102. Your magazine helps to keep me sane and sustains me. The soya-based inks are a most commendable initiative. Keep up the fantastic work.

Nina Groenewald, Wonga Park, Vic.

Sour-sob story

Hello fellow Earth Gardeners,

The whole idea of piling lots of mulch on weeds and couch sounds tempting and easy. Does it work better in different climates? Wherever we have mulched, thinly, heavily or whatever, sour sobs, couch and kikuyu laugh and send their smiling shoots higher and higher, proliferating with glee. Sour sobs (oxalis) are particularly a pain — they tend to grow wherever there is a mulched piece of ground, nowhere else! I've even pulled up sour sob and used that as mulch, to no avail! As a last resort this Winter, all my plants were waiting in pots until the end of Spring, when the sour sob will die off. Noth-

ing I plant in Autumn or Winter survives the competition. There is no way we can eradicate the blooming sour sob, as it creeps its way across the hillside from the township gardens.

Can you help with ideas, suggestions, anything? Our muscovy ducks love eating sour sob, but we only have three left after a fox raid, and we have about half-an-acre of sour sob! The magpies will eat the bulbs if exposed, and the occasional flower, but we'd need about a thousand magpies to cull this crop! We live in rural South Australia, about 80 km south of Adelaide. Our block ranges from red clay over deep limestone to a nice sandy loam. All the soils are infected. **Beverley Paine, PO Box 371, Yankalilla, SA, 5203. E-mail: bungala@terra.net.au**

The EG movement

Dear Earth Garden,

Thank you. We have had to take your wonderful mag out of the toilet because there is no getting into it once someone starts reading. Lucky I found somewhere else to put it. I can now pay for a subscription without getting constipation. Thanks also for the article on Green office paper.

Penny Philp, Macquarie, ACT.

Information on bush foods

Dear Earth Gardeners,

Hello! I've just discovered your great magazine and have enjoyed looking through back issues for inspiring and creative ideas! My partner and I are hoping to escape Melbourne early next year, and have been looking for ideas on how to sustain ourselves in the country with very low (non-existent!) capital.

What particularly interests me are 'bush foods' because of their obvious low impact on Australian soils (no need for pesticides). So far I've been unable to find much information on harvesting or processing foods such as wattleseed, lily-pilly or others. Are there any readers who could help me learn more or refer me to some good information? Thank you all for being believers in a good and successful alternative lifestyle. Glad to be meeting you all through the pages of *Earth Garden*!

Louisa Vale, 1 Moonya Road, Glen Iris, Vic, 3146.

Correction

In the story "Listen to the River Sing" in EG105, we inadvertently gave the wrong phone number for Kookaburra Park Eco-village. It should have read 1800 061 689.

Help for SS in the suburbs

Dear Earth Gardeners,

We have been reading your excellent magazine for just over a year now, and have found it to be very informative and interesting. We want to ask a couple of questions. Is there a natural way of dealing with the persistent pest of nut grass? We have tried weeding it out by hand, dousing it with boiling water, and trying to grow groundcover over it but none of these methods have worked. Help!

Secondly, for compost, we throw vegetable and fruit scraps into an upside down 44-gallon drum, then cover it with lawn clippings. We have run into trouble with putrid smells, maggots and flies, even when it is covered with a damp hessian sack. In three months we have produced a handful of compost. Again, help! Finally, we have used truck tyres filled with soil to provide drainage for our crop of fruit trees. The problem is how on earth do you cut through steel-belted radials when you want to remove them?

If anyone can help us please contact us at the address below. Any advice will be gratefully received, because we are keen to prove that a family can become at least 75 per cent self-sufficient in the suburbs.

The Bray Family, 9 Curlew Drive, Gladstone, Qld, 4680.

Loopy and very happy

Dear EG,

I am profoundly happy that I found you all. You see I am considered a little strange, loopy, and slightly bent by my husband, friends and acquaintances, because I think like you all do, and I do my best to have as minimal impact on the world as I can. For example I use string bags for shopping, write letters on envelopes, and send party invitations on tree leaves. Those around me consider this rather odd behaviour.

I despaired of ever meeting or hearing of someone who felt or saw things in the same light as myself, and then I discovered you all in an organic fruit shop. I am lucky though because I live on 3/4 acre in the middle of the suburbs, so I can have the best of both worlds. I must say thanks to John Hein ('Permaculture is about design', EPW, EG103, page 6) for his letter, because I am having the battle of the couch here and will be trying the lemon grass as a barrier. The book review (EG 103, page 87) has solved my 'where will I find it' guide to keeping chooks humanely.

Do any of you know from where I can get a Hoya Australia (waxflower) creeper?

Can anyone send me a cutting? I need this vine for my butterfly-breeding program, and I can't get it from any nurseries up here. Well, must go and rescue a spider before my husband sees it, just another mad thing I do. I am so happy, so happy, so happy, I just had to share it.

Meg Fabbro, PO Box 372, Sandgate, Qld, 4017.

Full tick for EcoTax

Dear Alan and Judith,

I can only concur with other *Earth Garden* readers — it's a great magazine. I look forward to each edition. I congratulate you on the EcoTax which I think is a wonderful and generous way of helping environmental and conservation groups. Having been a member of Movement Against Uranium Mining (MAUM) since 1976, I was delighted that last Summer's EcoTax (EG 102) was directed to assist the Northern Territory campaign supporting the traditional Aboriginal owners against the Jabiluka uranium mine in Kakadu.

Val Macarow, Moorabbin, Vic.

Progressive council

Dear Earth Gardeners,

We have just started work on our 17-acre bush block near Bega, NSW. I was pleasantly surprised at how helpful the local council was. It is now possible in the Bega Shire to buy or build your own waterless composting toilet.

The NSW department of health has given the go-ahead for both Rota-loo and Clivus Multrum systems. It will let you make your own as long as you have a sound knowledge of how composting works, for example: temperature, liquid content and carbon nitrogen levels. You must also provide an owner's manual and capacity amounts. The council will also let you set up your own greywater system with the same guidelines as above. If anyone in the Bega area is also into *Earth Garden* it would be great to meet up. Our present address, which will be redirected, is:

Karen & Robert, Barefoot Pottery, 336 Princes Hwy, Helensburgh, NSW, 2508.

Dam' koi

Dear Earth Garden,

Thanks for a great magazine — inspiring stuff! Can someone help me? We moved into our house about four years ago. We have a small dam, and when we moved in there were about six large ornamental koi carp living in it. Four years later, we have about 80 of them, and they're breeding like crazy! I'm too much of a softy to use them

for fertiliser. It would be great to get rid of them. They do keep the mozzies down, but they've ruined our frog population and are destroying the dam walls. Any suggestions for a koi-free dam anyone? (PS They're devils to catch!)

Angie Thomas, 90 Wilton Park Road, Wilton, NSW, 2571.

Who to contact in Wollombi?

Dear EG,

Ingrid and I are in the throes of making the jump from renter to landowner in the Wollombi region of New South Wales. As newcomers we'd be interested in making contact with people regarding permaculture, yoga, homoeopathy, mudbrick, land purchase and the rest!!

David Fawcett, 17 Mulhall St, Wagstaff, NSW, 2257.

Two of our favourite spots

Dear EGers,

We are busily working away on careers and studies, but always buy EG as a reality check, and as a pointer to our life when the kids are gone in a few years. In our travels, we have been taken by a few places, but being unable to spend heaps of time in any one area, are not sure which one might become 'our place'.

Our favourite spots are the Tasman/Forestier Peninsula in Tassie (and the Huon/Channel country), and the New South Wales south coast (Berry southwards to around Moruya). We're hoping that EGers reading this might be able to give us some ideas and insights into these areas. Of particular interest: communities of good people, and what sort of activities go on; commuting distances to main centres; costs of living, and so on. Also, we wouldn't mind buying some land in the near future, and start paying it off now. Maybe some EGers in one of those areas have a nice bush block (not too far from the sea), just a few acres, who would like to sell to us.

Phil Brown & Mischi John, 54 Livingston Avenue, Kambah, ACT, 2902; ph: (02) 6296 1778

Water everywhere, but . . .

Dear Earth Gardeners,

In view of the drought, is anyone experimenting with, or know of, a solar water desalinator? My tanks are nearly dry, but there are millions of gallons of salt water flowing past the door everyday and I would appreciate hearing from anyone with similar concerns.

Peter O'Brien, PO Box 110, Brooklyn, NSW, 2083.

Hope to see hop seeds

Dear *Earth Garden* readers,

Years ago I was farming in Canada and enjoyed picking hops to make sleepytime pillows. I have searched nurseries and seed manufacturers, and have been told time and again the breweries in Tasmania are the only ones with access to seeds. Surely not! If anyone has seeds or knows where I can get them, please write to me. I would love to see them again high on the trellis, with the air heavy with their scent.

Wendy Mockler, 5 Narambi St, Narrabundah, ACT, 2604.

Of mudbricks and jarrah

Dear Alan,

After my first *Earth Garden*, I was haunting the newsagent every three months, and pillaging any secondhand stores with old copies. I also bought the *Earth Garden Building Book* and the *Earth Building Book*. I also pour over the ads, wishing they had Western Australian phone numbers or addresses. Even my father-in-law has started reading EG. It's amazing how many 'new' ideas are adaptations of regular practices of his generation.

Our dream started about four years ago when I had a sum of money and realised that five acres at Bridgetown, Western Australia, were not only affordable but a sight more sensible than a new four-wheelie, so we started shopping for an 'investment property'. Now I have the first shed up, the second shed soon to follow (it's a bloke thing!) and the house plans almost finalised. We are building a mudbrick loft house (thanks for the idea Peter Lees), post-and-beam, for ease of beating red tape. Hopefully I will have it finished before my five-year tenure is up.

We have planted about 200 trees on our block, and plan about 500 more. Apart from their beauty, I want to supply my own timber for my woodwork hobby, because I don't think there will be much jarrah around in 20 years' time. It is one of the most useful timbers we have. It is a straight-grained hardwood that builds our houses, makes some of the most spectacular furniture you will see, and is second only to Mallee roots for firewood.

While I'm on my high horse, I find it extremely frustrating that I can happily wander out the bush, find a four-foot-diameter jarrah on the forest floor with perfect grain, and chop it up into one-foot lengths for firewood with no repercussions or fees. However if I wanted to tackle it with a slabbing mill, I need a craft-wood permit

which I can't get until I do a chainsaw safety course. Then I can only cut the slab up to 1.5 metres long. If I want to cut the slab longer, I need a forest-produce permit. These resemble hens' teeth to find, and I will have to pay a royalty of around \$50 per cubic metre. I would quite happily pay for my firewood if it was easier to take wood for craft purposes.

It is really good to see the occasional article about something in Western Australia, because most eastern States magazines forget we exist and it gets a bit tiresome reading about so much happening so far away. If any of your readers are travelling west, head south. The south-west is beautiful country, and the karri forests have to be seen to be believed, what's left of it, that is. And please pass through Bridgetown and see what a pretty part of the country this is.

Laury and Rachel Seton, Bridgetown, WA.

Dear Laury and Rachel,

I hope that one day soon, no-one will be able to chop down a jarrah tree unless they've grown it in a woodlot.

— Alan

Sourdough bread links

Dear *Earth Gardeners*,

As a passionate small-scale producer of genuine sourdough breads, I am writing to congratulate Keith Elwell-Gavins on his article in EG 103, 'Sourdough bread and the alchemy of wild yeast' (page 18). We built a small retained-heat wood-fired oven on our family farm in Healesville, 2-1/2 years ago. The oven was designed by Alan Scott of Ovencrafters. He is an Australian now living in California. The oven works really well. We just wish we had built a bigger one, because demand for our breads has grown and grown. We get up to five oven loads of bread out of a single firing with enough heat left to do the pies and cakes we soon hope to start making.

Alan's web page is at (<http://www.nbn.com/~ovncraft/>) or write to 5600 Marshall-Petaluma Rd, Marshall, CA 94952.

A great source of practical sourdough info is sourdough FAQs by Darrell Greenwood at (<http://www.nyx.net/~dgreenw/sourdoughfaqs.html>), worth checking out! A wonderful book is *The Bread Book* by Thom Leonard, published by East West books (I think?). It goes through growing wheat, milling it, creating a clesem (genuine sourdough starter), and even information on building a small retained-heat oven. Another useful contact is the Bread Bakers Guild of America. The guild is at (<http://www.bbga.org>), or PO Box 2254, Pittsburgh, PA 15222, USA. All the above web addresses have good links to other web sites worth checking out. If anyone is interested in having a look at our oven, or to just talk sourdoughs, I would be more than happy to share my knowledge. Give us a call. Happy baking.

Iain Banfield, Fruition, Healesville, Vic; ph: (03) 5962 3175.

Solar power and seniors

Dear *Earth Garden*,

I am writing to ask for advice on solar power. I would like to be self-sufficient with my power requirements but I do have some reservations about how I will be able to manage later on in life. I do have some slight physical handicaps which will get worse as I get older. I am in my early 50s (that is not a handicap), have slight arthritis in my hands and a bad lower back that is likely to 'chuck a willie' if I do anything it does not like. It is now possible for me to do all the chores entailed with a solar power system, but what about in 20 years time or so? That is what is worrying me, because I have no intention of allowing anything to force me out of my home.

If there is anyone with arthritis and a bad back out there who has solar power, could you please let me know how you are managing, especially if you are getting towards the 70s or onwards in age. Thank you.
Brenda Harkin, c/- Post Office, Glengarry, Tas, 7275.

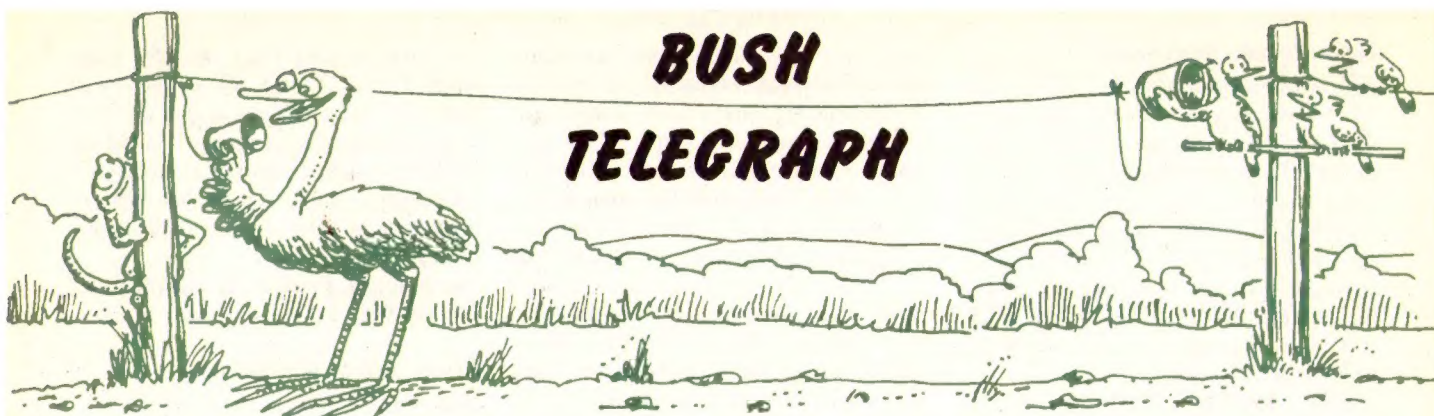
Sensitive building

Dear *Earth people*,

I would like to thank you for caring enough to produce *Earth Garden* and all the rest of your publications. I am a city slicker and I rent a house in the middle of the jungle we call Sydney. Often I feel disillusioned about my attempts towards caring for our world and its people. Then along comes another issue of *Earth Garden* to re-enthuse my spirit.

I am particularly interested in the many forms of sensitive building going on. As a carpenter and building student, I would love to hear from anyone involved (or planning to get involved) in alternate and sensitive building, especially in Sydney. Please write.
Tom O'Leary, 4 Bobart Street, Parramatta, NSW, 2150.

• Earth People Write continues on page 74



BUSH TELEGRAPH

Any news items which may interest Earth Gardeners may be submitted to *Bush Telegraph*. Please send notice of meetings, festivals and gatherings well in advance of the events.

Wilpena Tourist Resort Solar-Powered

The new Wilpena Tourist Centre in South Australia's Flinders Ranges is powered by the largest off-grid solar electricity system in Australia. The system, which cost \$2.5 million, combines solar cells with back-up diesel generators and batteries. The Flinders Ranges are a significant part of South Australia's natural heritage and the solar power station will complement the eco-tourism image of the new Wilpena development. It was architecturally designed so visitors have a panoramic view of the power station, and includes a pathway that leads visitors to a sheltered display area.

The fully automated 100 kilowatt system will initially contribute up to 40 per cent of the tourist centre's power demand and has been designed so the power produced by the solar cells will contribute to the instantaneous load as much as possible. The power station will be owned, operated and maintained by SA's ETSA corporation, who agreed to absorb additional costs of the solar/diesel station because of the opportunity to implement and gain experience in renewable energies. The use of renewable energy will reduce Greenhouse gas emissions by up to 300 tonnes of carbon dioxide per annum compared with an all-diesel system.

Angora, Boer Goats At Seymour Expo

One of the major new events to be staged at the 1999 Seymour Alternative Farming Expo from Friday, 19 February through till Sunday, 21 February will be the Australasian Angora and Boer Goat Show, which in previous years has been held at the Royal Melbourne Show. The Show will attract Australian and international interest and will be highlighted by three days of continuous activity. The goat show will feature an

introduction to both types of goats including displays of the various types and their crosses. A professional shearer will shear ten teams, which will then be evaluated on fleece returns and value, in addition to general conformation in both shorn and unshorn condition.

"The Seymour Rural Expo gives us the opportunity to show and promote the fleece and meat goat industry to a new audience — the 45,000 people who are expected to attend the Expo this year," said the organisers recently. *Earth Garden* will have its usual stall, with the full range of books, magazines and other items available. For more information about the Expo contact the organisers on (03) 5799 1211.

New 'Air' Wind Turbine

Two new improved turbines have been introduced to replace the Air 303 wind turbine: the Air 403 and the Air Industrial. The Air Industrial weighs 6.2 kg and features: an anodised cooling fin; sealed electronics; a tiltback for high winds; industrial carbon fibre blades; high-temperature yaw shaft; larger internal wires to minimise losses; and larger, longer power wires. The Air Industrial uses the same alternator and rotor as the Air 303 but the electronics have been upgraded. Greater output is possible with its new blades, and the cooling fins mean it can operate at a cooler temperature.

The new Air 403 is rated at 400 watts but is capable of 650 watts and weighs 5.8 kg. The Air 403 has enhanced electronics, a more efficient alternator, more powerful rotor and an advanced airfoil for greater energy capture. For robust blades, combined with high output, the industrial blades can be fitted to the 403 (and the 303). For further information contact Marty at Precision Wind Technology on (04) 1122 4807, or PO Box 44, Oxenford, Queensland, 4210.

The Silkie Pet

The children's book *The Silkie, Not Your Average Pet*, by Sharon Greenaway, is an introduction to the Silkie fowl, and covers areas such as where to buy the Silkie, through to raising chickens or showing her at poultry shows. The Silkie makes a great pet, being a very gentle, quiet fowl, and she is easily handled by children. The book is written by an Australian for Australian conditions and is from the experiences of an avid Silkie breeder. It is 28 pages long with black and white illustrations. To order, send \$12.00 (includes postage), to Bellsouth, 8/5-7 Vesper Drive, Narre Warren, Victoria, 3805.

Owner Builders Open Houses

The 1998 Maffra Avon Owner Builders and Briagolong Primary School open house tour is on 6 December 1998. It starts from the Art and Craft Market at the Briagolong Recreation Reserve in Briagolong, in Gippsland, Victoria, from 10.00 am until 2.00 pm (the tour runs until 4.00 pm), and costs \$25 per car. Product displays, expert advice, earth houses, timber, brick and stone houses, experiments in straw bale and more are on display for the day. For further information contact the Briagolong Primary School on (03) 5145 5260.

Wind Energy Advocate Honoured at World Conference

The World Renewable Energy Congress hailed long-time wind energy advocate, Paul Gipe, as a 'pioneer in renewable energy' at its recent international conference in Florence, Italy. The designation, one of the organisation's highest honours, was announced by Professor Ali Sayigh at the Congress banquet on 23 September. Gipe was recognised for his more than two dec-

ades of writing and lecturing about wind energy. Since publication of his book, *Wind Energy comes of Age*, which was selected by the American Library Association as one of the outstanding academic books of 1995, Gipe has been a frequent lecturer in Canada, Europe, and the South Pacific. Gipe's next book, *Wind Power Basics: A Guide to Small and Micro Wind Systems*, will be released by Chelsea Green Publishing in early 1999, and will then be available from Earth Garden's book club, 'The Good Life'. Paul Gipe's interest in wind energy grew out of his wish to limit the environmental effects of conventional energy sources, particularly those of coal and nuclear power. He is a member of the Sierra Club's national energy committee.

Paul will be leading a wind power workshop in Australia in early December 1998, hosted by the Electrical Engineering Department at Monash University in Clayton, Victoria. For details about the workshop, contact Miss Ling at the department on (03) 9905 5749.

Our Solar Hot Water To Asia

An Australian engineering firm has won a multi-million dollar industrial solar water-heating project in Asia — the largest undertaken of its kind. The family-owned company, Edwards Energy Systems, will supply stainless steel domestic heaters to the \$110 million Sheung Shui housing project in Hong Kong. The Western Australian-based company beat competition from companies in Greece, the US and Australia.

Herbicides Lethal To Crustaceans

Herbicides entering rivers are lethal to native freshwater crustaceans such as yabbies, shrimps and water fleas, a leading Melbourne-based scientist warned in October. The stark warning has serious ramifications for animals such as fish that feed on crustaceans, which are at the base of the food chain. "The whole Australian ecosystem could be at risk from continued spraying with these herbicides," said Dr Dayanthi Nugegoda, who led the research team in the Department of Applied Biology and Biotechnology at RMIT University.

The research reveals for the first time that even the relatively low concentrations of herbicides that are routinely recommended for spraying pose a serious threat to native crustaceans. Dr Nugegoda's studies have looked at the effects of commonly used herbicides on the early life stages of the yabby, freshwater shrimps and Australian daphnids, tiny water fleas with transparent

carapaces and protruding heads. The study, part of a larger research project on the toxicity of agricultural chemicals to non-target organisms, has provided evidence that herbicides may affect the survival, growth and reproduction of indigenous freshwater crustaceans.

"Results of our study show that Australian crustaceans are more sensitive to some environmental toxicants than similar Northern Hemisphere species. Loss of native species from the Australian ecosystem is a growing problem and it is vital that all chemicals sprayed in Australia be tested for the toxicity to non-target native species," Dr Nugegoda said.

Dr Nugegoda — one of Australia's few ecotoxicologists — now plans to demonstrate the importance of testing agricultural chemicals on local species before they are licensed for release into the environment. Her research was presented recently at an international conference in China, and *Earth Garden* hopes to publish an article she is writing in a forthcoming issue of the magazine. Dr Nugegoda joined RMIT in 1998 after working as a lecturer in the Department of Environmental Management at the Victoria University of Technology.

—The Age



Festival of Folk, Rhythm and Life

The Festival of Folk, Rhythm and Life will run again this year from 4 to 6 December 1998 at "Bilyana", Woolshed Valley, El Dorado, in north-east Victoria. There will be a market, healing village, indigenous and local bands, comfy camping, a huge range of food, art installations, workshops, environmental information, over 40 acts on three stages, and Guinness on tap. The Festival of Folk, Rhythm and Life began in 1996 thanks to a group of young people from the Wangaratta region. The Association is run on a volunteer basis, with all money going to youth and environmental causes such as Typo Station — an amazing outdoor education centre for young people from urban or troubled backgrounds.

The festival is made possible by local and Melbourne-based supporters who donate time, goods and generosity. The festival attempts to maintain the environment in which it is held — organisers don't allow glass or polystyrene on the site, and encourage their audience to leave all as they found it. The organisers invite people to attend, particularly families and regional Victorians. Tickets are on sale throughout Victoria, and cost \$32 (for waged), \$22 concession, or \$70 per family (two adults and any number of children).

Weeds Win Genetics War

Genetically-engineered crops are spreading their new genes to nearby weeds, and the resulting hybrid weeds are proving just as strong as wild weeds. Researchers said hopes that nearby weeds would somehow inherit a weakness with the new gene, and perhaps die out, had been dashed by their studies. The researchers told a meeting of the Ecological Society of America in September that plant breeders would have to find ways to stop genetically-engineered crops spreading the new genes to other plants.

Plant biologist, Ms Allison Snow, of the Ohio State University, studied canola oil plants grown in Denmark. Canola is used in cooking, industry and soap. Ms Snow found that theories speculating that when weeds cross-bred with genetically engineered plants, they would not be as healthy as normal weeds were untrue. Scientists knew that weeds inevitably cross-breed with crops, but had hoped it would not be a problem. Herbicide-resistant weeds, however, will create big headaches for farmers.

The Gene-Free Food List

The Gene-Ethics Network, Northern Rivers, has just launched Australia's first Gene-Free Food List, to allow consumers to make more informed food buying choices. For food types which could contain GE ingredients it lists the GE-free brands, likely GE ingredients, or both of these. All products currently on sale with 'gene-free' labelling are separately indicated. The list is four pages long, and is available for \$1 plus SAE from: Gene-Ethics Northern Rivers, c/-BSEC, 123 Keen St, Lismore, NSW, 2480.

BP Solar Build Sydney Solar Plant

Australia will become the world's third largest supplier of photovoltaics, behind the United States and Japan, after BP Solar Australia recently decided to build a large manufacturing plant in the Sydney suburb of Belrose. The A\$57 million plant will

manufacture 20 megawatts a year of high-performance solar cells, with the potential to expand to 50 megawatts a year (the world solar output was 100 megawatts in 1997). The plant will come on line in October 1999.

The General Manager of BP Solar Australia, Mr Ken Brown, said that exports, including solar modules and complete systems from the new Belrose plant, will total about \$A100 million by 2000 and bring energy to people in South-East Asia and the South-West Pacific who would not otherwise have access to an electricity grid. The 12,000 square metre facility will employ about 200 people.

The company won a contract to supply solar power systems to the Athletes' Village, next to the site for the 2000 Olympic Games, and also won a \$40 million to supply 400 remote villages in the Philippines with solar power, benefitting more than one million people. The Belrose plant will allow special access for school and university tours to enable students to see how solar cells, modules and systems are manufactured and how they work. BP Solar Australia is running a national poster competition for primary school students, under the theme 'Putting the Sun to Work'. The prize for the winning school is a solar power system.

More Solar Water Heaters Needed

European markets for solar hot water systems grow at 18 per cent every year. Writing in the June 1998 issue of Solar Progress, the journal of the Australian and New Zealand Solar Energy Society, Professor Graham Morrison of the University of New South Wales was critical of Australia's failure to reduce Greenhouse gas emissions and create jobs by supporting the solar industry.

"We have a power output equivalent of 800 megawatts from existing solar water heaters, which is comparable to a major coal-fired power station. But this is largely based on a higher market penetration in the warmer States, not New South Wales and Victoria where most Australians live. If we were to invest in those markets, Australia would cut its Greenhouse gas problems," Professor Morrison said.

"By just doubling the present five per cent market penetration in south-eastern Australia we would be displacing the equivalent output of a further 1000 megawatts." Solar water heater industry growth benefits Europe economically: the growth over the next five years will create 70,000 jobs, according to Professor Morrison. Subsidising solar water heaters would be an ideal strategy because of the low risk, mature technol-

ogy. In Europe, up to 60 per cent subsidies are offered by governments with a stronger commitment to reducing pollution. Governments should specify solar water heating systems for public buildings such as hospitals, schools and prisons, he said.

I assure you Professor, the government is strongly committed to supporting the solar industry!



UK: Genetic Crop Moratorium?

Britain is considering a three-year moratorium on the commercial planting of genetically-modified (GM) crops. English Nature, the Government's chief environmental advisers, have recommended the three-year pause to allow further research into the possible harmful side-effects of GM crops, Environment Minister, Michael Meacher, told BBC radio recently. Environmental campaigners say GM crops — engineered to resist pests or tolerate extra herbicide — could kill off the plants which act as food for birds, insects and animals. They also say more research is needed into the possible side-effects on human health of eating GM food. Newspapers said the Government had summoned the heads of biotechnology companies based in Britain, including the US giant Monsanto, for talks about a voluntary code which would delay wide-scale planting of the crops until 2002.

EU Commission Over-rules Danish ban on drinks cans

The European Commission is taking legal action against Denmark's ban on metal drinks cans, which the EU alleges breaks EU law. Danish law currently prohibits sales of canned beer and soft drinks on environmental grounds. Denmark is the only EU country where beer and soft drink cans are not allowed. The Commission, the EU's executive, said the ban was "a barrier to trade" within the 15-nation EU single market. The EU's executive is expected shortly to launch legal proceedings against Germany for a law which requires drink-makers to use reusable bottles.

Shell Launches South African Solar Scheme

Oil giant Shell, in a joint venture with South African State power utility, Eskom, will invest \$30 million on solar power development in rural South Africa over the next three years. The project will offer stand-alone solar power units to as many as 50,000 homes currently without electricity at a cost of around \$8 a month. "This is the largest commercial, solar rural electrification project ever," said Willem-Jan van Wijk, head of Shell Solar, the oil company's solar power unit. "The major barrier impeding the growth of solar power has been that it requires a high initial outlay of capital; this system removes that barrier," Van Wijk said. The move is part of a five-year, \$500 million initiative launched a year ago to diversify Shell's energy portfolio and take a stake in what it views as a gradual industry shift toward cleaner-burning fuels and renewable energy.

"This and other investments in renewable energy will help shape our future in a post-Kyoto energy environment," said a spokesperson.

The new solar home systems in South Africa, capable of powering three low-voltage lamps and a small television or radio for around four hours per day, will cost Shell and Eskom around \$800 per unit to manufacture and install. Under the system, customers will pay an initial \$30 installation fee for the system, then pay \$8 each for magnetic cards which will activate the system for 30-day periods. Shell estimates that the project could provide around 2.5 megawatts of power to regions currently outside the reach of South Africa's national power grid.

The figure would represent around two per cent of the current 115-megawatt global solar power market, Shell said. The solar home systems comprise a lone solar panel, a charge controlled battery and a security and metering unit. Shell said the investment, which officials said would likely take around nine years to recover, would serve as a test case for the commercial feasibility of other solar power projects in the developing world. "We hope to export the concept to other countries as well," Shell's Van Wijk said.

Vermitech Wins \$50,000 Prize

Vermitech Pty Ltd has won a prestigious award for its unique solution to handling the problems of organic waste. The Vermitech process involves three steps: blending wastes to remove odour, feeding the waste to earthworms, and harvesting the vermicast (worm poo) from the patented bed base.

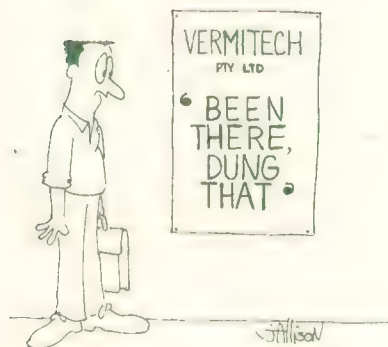
"Vermitech has developed a cost-effi-

cient, pollution-free process for converting organic waste into vermicast, offering a sound solution for the disposal of sewage sludge and other organic waste," said Ms Polmear, CEO of Pacific Access, in announcing that Vermitech was the winner of the 1998 Yellow Pages Business Ideas Grant. Their full-scale pilot facility in Redland, Queensland, was opened in April 1998 as the largest of its kind in the world, processing 20,000 tonnes a year of sewage and green waste. Vermitech currently processes 650 tonnes per week of sewage and piggery waste at three plants located in Brisbane, Warwick and Scone.

"The \$50,000 grant will be given to the CSIRO and the Department of Primary Industry (Qld) to continue with their research," said Mr Mike Lotzof of Vermitech. "It will be a great help to get faster and better results. There are no losers except people who have a vested interest in dumping organic resource into landfill, or those who want to build incinerators," he said.

The export potential for the technology is even larger. BioVerm vermicasting is used in four States in vineyards, orchards, vegetable production and rehabilitation of mine sites and degraded soils. BioVerm is also used by leading race tracks and golf courses and local councils because it does not pollute, has no odour and creates a healthier soil.

Here are some worm facts about Vermitech's operation: the plant uses red, blues, tigers and African night crawler earthworms; for 400 tonnes per week of waste they have 160 tonnes of worms; and it takes three tonnes of waste to make one tonne of BioVerm.



Huge Wind Farm For SA

Australia's biggest wind farm should be commissioned within a year, on a site at Lake Bonney, west of Mt Gambier in South Australia. The 100 megawatt farm, being planned by a consortium of six companies,

will be the first of a number that are being considered, at least one of them bigger than the Mt Gambier project. The technology will be provided by Beacon Energy of California. The wind farm will have a maximum operating wind speed of about 80 to 90 kmh (25 metres per second). Above that velocity the turbines would be turned into the wind and power would be cut off, in the interests of safety and preserving the equipment. The number of wind turbines around the world has doubled in the past four years to 50,000, with a capacity of 6000 megawatts, and the turbine manufacturing industry has sales of \$A1 billion a year.

—SEIAA Newsletter

Bamboo Society And Corporation Take Off

Over 100 enthusiasts and visionaries converged on Brisbane at the end of August to establish the Bamboo Society of Australia (BSA) and the Australian Commercial Bamboo Corporation (ACBC).

The objectives of the Society are: to promote all aspects of bamboo interests in Australia, to promote opportunities for sharing information, education, and awareness among the public, to circulate two or more publications per year, and to encourage local chapters within the Society. There will be a Web page on the Internet as soon as possible. The Society intends to have field days in various States to share information and to educate the public about the beauty and uses of bamboo for enjoyment and profit. The membership fee is \$20 per year for a regular active member, with other rates for supporting membership, corporate membership and affiliate membership. For information about membership contact: Mr Kevin Lang (his E-mail address is: klang@earthcare.com.au), Secretary, Bamboo Society of Australia, PO Box 2, Eudlo, Qld, 4554.

The one-day meeting and one-day field trip provided a fine venue for contacts between bamboo growers from Queensland, Northern Territory, New South Wales, Victoria and Western Australia. As an emerging industry, bamboo (for culinary shoots, and for timber) offers attractive financial returns to growers after the three to five year investment period.

"It's exciting and history-making that for the first time ever, there are two incorporated societies. One to promote the esoteric beauty and the future of bamboo as a plant, the other to look after development of this very viable industry," said Victor Cusack, industry leader and owner of Bamboo World

at Wadeville in northern New South Wales.

"By the end of this season Bamboo World will have provided the material for 150 hectares of plantation bamboo throughout Australia, and approximately 100 hectares will have been planted in northern New South Wales alone, making it Australia's largest centre for bamboo plantations. There are now dozens of people employed throughout Australia in the bamboo industry, and it has overtaken coffee in terms of total planted acreage," said Victor, the author of *Bamboo Rediscovered* (see page 88 to order, or your local newsagent or bookshop). The ACBC can be reached via Victor Cusack at Bamboo World, phone or fax (02) 6689 7214.



City Farm Festival

'Sprout' is an all day festival being held at City Farm, Brown Street, East Perth, on 6 December. The event is organised by the City Farm and the Ran Dan Club, and will include market stalls, discussions and children's activities. A feature of the day will be the planting of a temporary garden over the car park and 'The People's Forest'. The area will be decorated with beautiful 'sprouted' flowers and plants. These will be the culmination of community and school workshops held in the lead up to 'Sprout'.

City Farm is a community-based project that was established in 1994 on the site of a scrap metal yard. City Farm is the youth branch of 'Men Of The Trees', the international tree-planting society. The City Farm project seeks to encourage youth to develop a positive attitude to the work place, and to develop skills in permaculture and organic gardening. It is famous for its community events, wholesome catering, and large gigs. The Ran Dan Club is a community-based theatre arts group.

'Sprout' promises to be a great day out, and *Earth Garden* is delighted to encourage people to attend. For further details contact Thom Scott at City Farm on (08) 9325 7229, or fax (08) 9325 7210.

Pigs Might Fly With Strawbale Houses

Helen and Per Bernard are central Victorian architects and designers who specialise in strawbale buildings. They have recently gained approval for a client to build a loadbearing strawbale house in South Australia, and they've successfully completed The Flying Pig bed & breakfast house in the central Victorian town of Daylesford.

Helen and Per Bernard
Daylesford, Victoria.

WORLDWIDE interest in strawbale house-building is growing. Strawbale buildings exist on every continent, both as low-cost housing and more mainstream buildings. Down Under, activity is just starting and *Earth Garden* readers have been introduced to several strawbale buildings over the past two years.

During the winter of 1998 we designed and constructed our first strawbale building and now, being more enthusiastic and a little wiser, we're beginning our second. We have designed half a dozen or so strawbale buildings. Some of the latest include a gallery and a winery, both of which are scheduled to be built over the summer.

Loadbearing strawbale in SA

We've recently gained approval for a loadbearing strawbale house we designed. Such a bureaucratic breakthrough, however, wasn't easy. Convincing the authorities,



Elevating the bales to the first floor of The Flying Pig.

while addressing discrepancies in the Building Code of Australia, certainly tested the patience of the many building professionals involved in this project (not to mention the client!). Perseverance and dedication are powerful tools and we took comfort in the thought that if we persisted long enough then maybe, one day, we would have the pleasure of banging our heads against a strawbale wall!

The Last Straw

We have been encouraged by the international strawbale community, and inspired by its journal, *The Last Straw*. Here we are reassured, taught and generally informed by those who have tried, tested and experienced strawbale. Don't miss the next issue: Strawbale Down Under will be featured. Through our work with experienced strawbalers in the USA and visiting some of the thousands

of completed houses there, we have gained the confidence to offer strawbale construction in our architecture and building practice.*



The Flying Pig

Our first strawbale job was to design a house which also offers bed and breakfast accommodation, at Daylesford in central Victoria. In our initial discussions with our client, Maureen, we mentioned our new interest in strawbale construction. A brief description of the thick walls, deep window sills and exceptional insulation qualities were enough to inspire Maureen to go for strawbale. And so our journey began.

We met with a structural engineer, Peter Yttrup, who is interested in alternative building technology. He has designed several strawbale buildings in recent years. We decided to build the house using the modified post and beam method. This avoided the complications of convincing the authorities of the potential of loadbearing strawbale construction. After several discussions we had the full support from Mount Alexander Shire in issuing the building permit, as well as their positive interest throughout the construction. They are keen to promote strawbale construction.

With building permits, insurances and contracts in place we were eager to start, within six months of receiving the commission.

We poured a conventional concrete slab, closely followed by the wall framing. We used plywood box beams, the thickness of the bales, around door and window openings, while ten centimetre (four inch) posts were located at each corner to support a roof-pitching beam. We used long span, posi-strut joists for the first floor framing, and conventional gang nail trusses formed the roof. As a 24 square, two-storey home, the framing was a big job.



Trimming the bale walls with a whipper-snipper. The structural door and window frames are made of radiata pine and plywood, and support the perimeter beam.

Right: Architect, Per Bernard, cuts out Maureen's letterbox from the strawbale wall in front of her house.

Getting the strawbales

Once the roof was on, we had somewhere dry to store the bales and half the bales were delivered. Regular bales of wheat straw were supplied from a baling contractor in Elmore, Victoria. A local farmer lent us a conveyor to carry the bales to the upper storey. We had installed chicken wire on the outside of the frame, stretched taut so that the bales could be stacked up against this plane. No bale pinning was required because the straw was simply infilled within the post and beam frame.

After the bales were in place out came the whipper-snipper, which easily trimmed the bales to a true and neat finish. Almost too straight in fact, because the walls were at risk of denying that slightly uneven texture which gives strawbale homes their unique character. We then fixed chicken wire to the inside and used a bale needle to stitch the two sides together. The chicken wire held the bales in place, despite strong winds. We installed expanded metal or diamond lathe, finished with plasterers' stopping bead, around openings and to cover any exposed timber that was to be rendered over. Then we started the rendering.

Rendering

The house is hand-rendered inside and out with two coats of cement render. When applied over chicken wire inside and out, the cement becomes re-inforced cement skins, to form a sandwich panel of great strength, which is insulated with straw. The cement is waterproof but breathes to allow condensation vapour to escape from the strawbale wall. The option of earth renders did not appeal to the owner,



Right: The completed porcine aviatrix.

Below: It snows in Daylesford but The Flying Pig is warm inside even if it's cold outside. The house is built on land that has been in the hands of Maureen's family since 1876 when her Swiss-Italian ancestors settled in the district.



STRAWBALE HOUSES: Heating and Cooling Costs

The Flying Pig has been awarded a five-star energy efficiency rating by Energy Efficiency Victoria. To gain this rating the house needed to pass a 35-point test, but it managed to pass 55 points. That's partly because of the superb insulation qualities of the house's strawbale walls. An insulated weatherboard house has an 'R' rating (resistance to heat flow—the higher the 'R' rating the better) of about R2; a brick veneer house with no insulation is about R1.5; a double brick house with foam cavity insulation is about R1.5; and a mudbrick wall is about R0.5. The Flying Pig's strawbale walls are a staggering R8.

Per Bernard points out that 65 per cent of a house's heat loss is through the ceiling so there's no point having strawbale walls with poor ceiling insulation. The Flying Pig's ceiling insulation — recycled pulped paper (cellulose) — is rated at R6. So what does this mean for annual savings on heating and cooling costs? A 5-star rating means the 'average family' will save a massive \$1200 per year on heating and cooling costs, or \$20,000 over the 'typical' mortgage of an average-sized home.

who wanted a low-maintenance building. Because the house is in a high rainfall area, the benefits of a cement finish were more appealing than climbing a

ladder regularly to re-render two storey walls.

On the outside, we finished the walls with a cement colour coat. The product we chose was free from bonding agents and sealants, to maximise the ability of the wall to breathe. Internally we finished the walls with serene lime plaster and beautifully coloured limewash. The texture of the walls varies from room to room because we trialled different techniques. Maureen enthusiastically and carefully detailed some of the plaster in the deep 'reveals', with her own personal touches such as a basket-weave pattern.

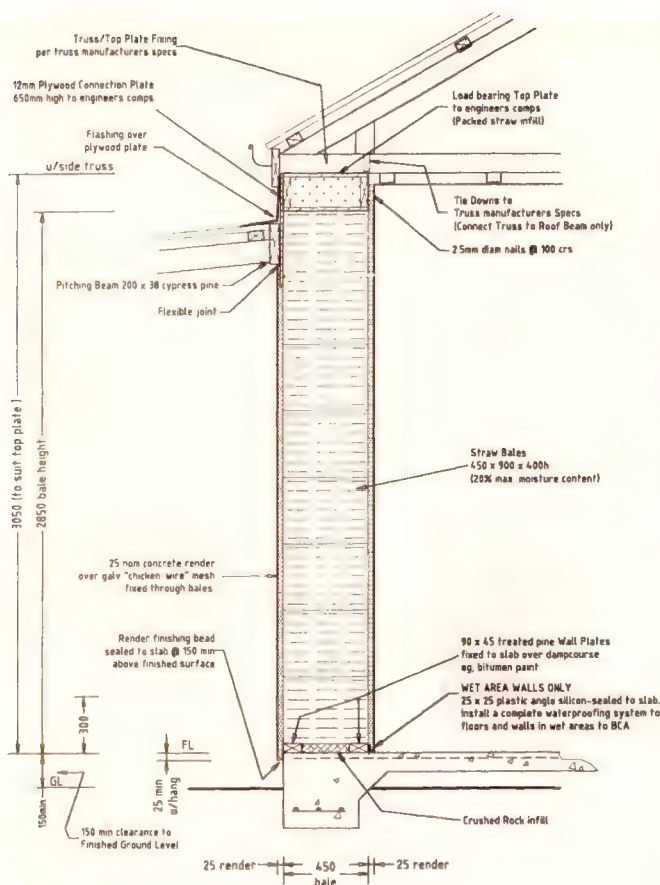
One afternoon a curved and stepped landscape wall was built, and rendered another day. This time we used a spray render, which gave a quick, strong and nicely-textured finish that complements the smoother finish of the house.

Certified Energy-efficient

Energy Efficiency Victoria have awarded the house a Five Star Energy Rating, the highest possible. The passive solar design incorporates north-facing windows shaded by pergolas in summer, highly insulated walls and ceilings rated at least R6, as well as thermal mass provided by the tiled slab and the thick render on the walls. The hot water service is in the laundry where its heat dries the washing and the room. Two small wood heaters warm the house in winter months. Maureen does, however, have a problem with these. You see she hasn't been able to find a way to get the heaters to burn at a suitable level without getting too warm!

To be inside the completed house is a wonderful experience. Thick, solid walls have a calming effect. They are slightly uneven, and gently rounded at window openings and corners. It is very quiet. The rendered finish gives a timeless feel to the house.

Compared to other building methods, strawbale construction is excellent value for money. It costs no more, but has wonderful, unique qualities. The lower heating and cooling costs,



A section of the loadbearing strawbale wall of the South Australian house.

as well as the low maintenance finish bring ongoing savings.

Many years ago Maureen named her B&B 'The Flying Pig' because she felt she might never realise her dream of having one. Little did she know she would build a house of straw. The Flying Pig opened for accommodation in November 1998, and house tours are available for \$15. Bookings can be made by phoning Maureen Peterson on (03) 5348 1222.

**Imagine Strawbale Constructions offer design, consultation and construction services. Hands-on workshops will be conducted over the summer. For dates and details phone (03) 5348 1298 (or Email: Imagine@netconnect.com.au). Their website is: users.netconnect.com.au/~imaginestraw.htm*

• **'The Strawbale House' is the strawbale builder's 'bible', and is distributed exclusively in Australia by 'Earth Garden'. It is available for \$54.95 plus \$8 postage from Earth Garden's 'The Good Life' book club at: RMB 427 Trentham, Victoria, 3458; or phone (03) 5424 1814 to order.**



The strawbale wall is spray-rendered with ferro-cement by Mark Boyd-Graham of Reign Concrete Watertanks.

Spray-rendering strawbale homes

Strawbale owner builders tell *Earth Garden* that they have no trouble getting friends to help at working bees with raising strawbale walls. The trouble comes in convincing them to keep up the rendering. Applying earthen or cement renders to strawbale walls is time-consuming, and a couple of small businesses now offer spray-rendering.

Quick-Straw Spray Rendering

Lachlan Burke is a long-time *Earth Garden* reader who has recently established his own business — Quick-Straw Spray Rendering. Lachlan now has experience in spray-rendering strawbale walls with either a cement render or earthen render. He prefers an earthen render for inside applications but is quite happy to apply cement renders to outside walls — especially in wet climates. Lachlan is also happy to work with owner builders to reduce the cost of the spray-rendering.

A 15 square house will take six weeks to render by hand, but only about two weeks to spray-render. According to Helen Bernard, a spray render gives a more textured, rustic finish to the wall, but may not be much cheaper than hand-rendering. Of course, many Earth Gardeners will prefer to do their own rendering, but if winter is imminent, the strawbales are in danger of getting wet, and the project can't proceed til the rendering's done.

Lachlan can be contacted on (03) 9850 1332 or (0417) 346 524, or by writing to Quick-Straw Spray Rendering at 269 High Street, Lower Templestowe, Victoria, 3107. He is happy to travel.

Another business offering spray-rendering for strawbale builders is Reign Concrete Watertanks at Maldon in central Victoria. Mark Boyd-Graham spray-rendered the strawbale wall in front of Maureen's house, and can be contacted on freecall 1800 012 014, or (03) 5475 1340, or by writing to Whitlocks Road, Maldon, Victoria, 3463.

Season

by

Season

with

JACKIE FRENCH



*Earth Garden's
regular saunter
in the garden, with
Australia's favourite
organic gardener*

Of doubts and flooding rains

There's nothing like a flood to get you thinking. There's not much you can do in a flood. It's too wet and cold, not to mention boggy, to work outside, and we ran out of inside jobs to do. We couldn't even paint those didn't get around to it' bits because the humidity was too high.

And there's something about the crash and sweep of a flood — the brown water swirling down the valley towards the ocean, white froth and grinding boulders — that makes you just want to look at it, and enjoy the sound of the rain of the roof, the flicker of the fire in the stove, and the smell of about-to-go-to-seed carrot soup simmering away. And it makes you want to think.

And there's time to solve the problems of the world with your partner too, or at least clarify what some of them might be.

So there we were, with the water yelling out the door and the damp red-browed finches pecking at the bird feeder outside, cups of green tea with lime juice in our hands (well, mine, anyway; Bryan had Ovaltine), discussing how little of what we read in the newspapers — and even less of what we see on television — is actually important to our lives. Most stuff in newspapers is about politics, or rather, about political gossip, and about crime, which is a sort of social gossip. What *does* affect our lives?

On a macro scale it's the things that *don't* get put on television or in the papers, or rarely do, because they are too complex, hard to understand or potentially boring. And newspapers and most television shows need to interest their

readers so they can sell advertising space.

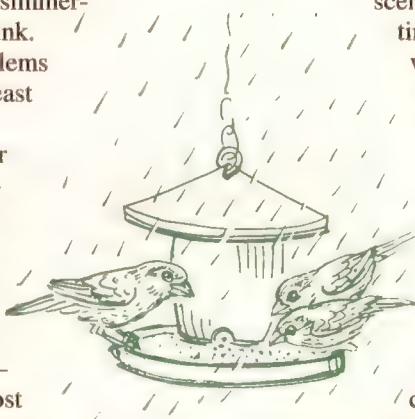
The things that really affect us are the behind-the-scenes manipulations — who will fight or trade with whom; who will control which part of the media, and so on. Also, the decisions which affect what you will eat, how you will work, how you will be entertained (either on television or film), what you will read, what you will be allowed to know, and whether you will live in peace or have a large part of your earnings dedicated to preparing for a war that might or might not come.

Then there are the even more important behind-the-scenes complexities: whether the world will continue to provide food, water and air for us, and what the quality of these will be. In other words, millennial bugs of a quite different sort.

And then there are the day-to-day important things: how much noise will we have to suffer from the traffic outside? What about the density of people around us? Will they turn into neighbours or enemies? Will you plant a garden together? Or will you have to install a security system? What relaxation you will choose? And how much choice will you have? For most people it's a choice between

television channel X or Y, or a pub or a club.

A few years ago I read about the Donner party disaster in the United States last century. A wagon train, the cowboys-and-Indians-movie-type, set out too late in the season to cross the Rockies, got caught by a blizzard, and most of the travellers died — but not *all* of them.



Co-operation

So a few years ago some researchers analysed who survived, and why. It wasn't necessarily the strongest or the fittest. Many of those who survived were very young or very old. It was those who had families, or who had formed surrogate families. In other words, those who co-operated with each other.

Time after time you see the same pattern — those who survive prison camps, war and other disasters are those who co-operate: whether it's the physical support they give each other, or just encouragement. And when I look at the long stretch of human prehistory, I sometimes wonder if that's why we survived and other hominid cousins didn't: because we could talk, and co-operate.

When I was a kid, I used to dream of having my own island; just me and a million birds and animals and a heck of a lot of mango trees, and maybe one that gave icecream as well. Now I know you don't really have independence without other people.

This is depressing. Twenty-five years ago, I had no house, just a patched-together tin shed and the beginnings of an orchard. However, I had neighbours on whom I could rely utterly — the sort of bond that's closer than many families ever achieve. If you need help, you *know* they'll come to your aid.

Now I've got the house, the orchard and the garden, and the valley has changed. Much of the old country spirit is still there, don't get me wrong, with the fire brigade and so much else that's done unthinkingly for each other by a rural community instead of by other people anonymously, as it's done in the city. There is still the extraordinary generosity of so many people. But it's changing. Even here, society is fragmenting just a little more each year.

Twenty-five years ago it was unthinkable to lock your house. You never knew if someone might need to use your phone when you weren't there. Burglaries just didn't exist. When I was a child, even in the suburbs, people knew and helped each other. The last half of this century has been a gradual rot, so slow there's never been a point where you can see it happen. Has there ever been an election where the parties appealed so much to individual self-interest, and not to the good of the whole?

Humans survive by co-operating. Even as I watch the trees grow here, and imagine what there will be in another 25 years, a small part of me is afraid.

Other projects for rainy days.

Actually I did do a few other things besides sit and natter to Bryan. I made several cakes, 24 quiches, and also experimented with various other delights, including:

The ultimate bubble bath

one tablespoon honey (yes, I do mean honey)
one teaspoon Tabasco sauce (yes, Tabasco. But don't panic: it won't singe your extremities. It will just add a very slight and pleasant glow)
one cup of Epsom salts

half-a-cup of shampoo (if you intend to bathe very grubby kids who aren't prone to rashes, detergent is even better and gets the bath clean, too) and one teaspoon of your favourite essential oil — lavender, rose, orange, otherwise lemon or cinnamon if there are males involved who are sensitive about their machismo.

Combine. Keep in a jar. Add a splodge to your bath as it fills. Preferably bathe by candlelight, but don't blame me if the house burns down when you go to sleep in the bath.

Gorgeous bath gunge

(Bryan says call it bath or shower gel because it sounds better)

Simmer: two cups lavender flowers and three cups lemon grass or lemon verbena leaves in three cups water, *with the lid on*, for five minutes. Or take one teaspoon lemon oil and one teaspoon lavender oil then strain and add three tablespoons gelatine. (I like to add some rose oil and sometimes orange oil as well.) Add to a cup of boiling water. Mix well. Add a good squirt of shampoo. Mix again. Leave to set.

You use this by taking a glob in your fingers and smearing it over your damp body, very thinly, then washing it off. The scent lingers...

A fertility perfume

This is not my recipe; I've just adapted it. A variant used to be dabbed on brides on their wedding night. If it has any effects other than smelling good, I don't want to know.

Combine: one teaspoon orange oil with one teaspoon lavender oil and three drops rosemary oil. Add to two tablespoons of vodka and a cup of mineral water. (I said I'd adapted the original recipe.) Splash on as preferred.

Dog, cat and possum-repellent gel

Simmer: one cup wormwood for ten minutes and strain *or* heat one cup Indonesian fish sauce. Add three tablespoons gelatine, one teaspoon Tabasco, and shake well. Add the same amount of cloudy ammonia. (Take care of eyes and fingers, and don't sniff.) Shake again. Leave to set. Smear a little, *not* on tender foliage, but on stems, fences and similar.

Coppicing

This is where you have one gum tree and chop it down so you have lots of gum stems, all sprouting out of the bottom, and sporting the very attractive juvenile foliage. Summer is the best time to coppice, preferably just before (if you're weather-wise) or after rain, so it encourages the tree to sprout again.

Summer, of course, is also the best time to cut firewood, so it dries for Winter. Don't waste the leaves. Gum leaves take ages to break down unless they are chopped up finely, which means they make an excellent mulch to suppress weeds.

If you do want to decompose gum leaves, run the lawn

mower over them, preferably with the catcher on. This is also a great way to chop up all sorts of other leaves and soft stems, as well as citrus skins and other stuff that's both tough and high in oil and needs mincing to rot down fast.

Possums and coppicing

Possums adore coppices. Possums' favourite food is *young* gum leaves, not rose shoots or orange leaves. If they have masses of young gum leaves, they'll mostly leave your rose shoots alone.

I love masses of dried gum leaves. I keep a few in most of our vases most of the time, and just bung in a few fresh flowers every week or so. It always looks better than just flowers. (Too many flower and not enough greenery always looks odd, whether it's in the house or in the garden.) Some gum leaves, particularly the juvenile waxy leaves of the blue gums, dry quite happily without your doing anything, and keep most of their colour and shape too. Others, like the peppermints, smell gorgeous for a couple of weeks, then start shedding dead leaves everywhere, all pale and twisted and dead looking.

The way to get around this is to put the gum branches in glycerine, that sweet stuff you buy in the supermarket for elaborate sweet-making. It takes anywhere from three days to two weeks, depending on the leaves and the weather, for the glycerine to penetrate, but you'll be able to tell when it happens. It just sort of changes, if you know what I mean. The colour will stay more or less natural, and the leaves will last for at least a year, if not two or more.

Back to tomatoes ...

A good tomato calls to you. I'm serious. Suddenly there'll be a baking hot day, the sort that sends the cicadas singing and the magpies muttering in the shade. And you'll hear a voice from the vegie garden. Well not a voice, exactly. A sort of song, a sort of smell, a hot soil-and-tomato smell wafts out, and there among the pungent leaves will be the first ripe tomato.

A watched tomato never ripens. Well, it does actually; it just takes a long time. We have long, cool springs here, and the tomatoes stay green and swollen for months (this is not an exaggeration) before slowly blushing pink. And finally – oh, frabjous day – we have one stinker of a hot snap and they turn red.

Our first tomato last year was round and deep, deep red on one side at least. The slugs had been into the other side, the bit next to the soil where I couldn't see it. I squashed the slug, cut off the split bit, and we ate the rest with a spit of olive oil and some chopped garlic chives.

Note: a good tomato doesn't need vinegar, not even balsamic, or not more than two drops anyway. It should

provide its own acid, its own sweetness as well as that indefinable pungency that means fresh homegrown tomato.

Even decent varieties of shop-bought tomatoes don't taste like homegrown ones. For the best taste a tomato has to be picked hot and soft and red. It'll be so soft you can't cut it for sandwiches either. Those neat, round balls in the supermarket are good for something.

Tomatoes used to be grown purely as ornamentals — *pomo dei mori* — apple of the Moors, or apple of death. This became Anglicised to 'golden apples', and later as *pomme d'amour*, or love apples, or aphrodisiacs. Small kids were warned not to touch them. The suspicion that tomatoes were aphrodisiac lasted right up until the end of last century. Actually I'm not sure they aren't. There's something about a fat, ripe, red tomato. If you're worried about tomatoes' aphrodisiac properties, especially on the sandwiches of susceptible adolescents, just add a bit of lettuce. According to the medieval herbalist Culpepper, lettuce is a sure-fire dampener of passions. But that's another story.



Possums
adore
coppices.

Gift for teenagers

Take a bottle. Fill with two-thirds boiled water and one-third white or cider vinegar. Add a slug of tea-tree oil and two crushed garlic cloves. Make a neat label: Guaranteed Anti-Zit Lotion; apply twice a day.

Henry VIII's sleep pillow

Henry VIII had his own Keeper of the Royal Sleep Pillow. This can be inserted into the pillow stuffing, assuming you have a feather pillow, or made into sachets and slipped inside the pillowcase.

Combine: Dried hops (but don't abandon this recipe if you can't get dried hops), dried rose petals (fragrant), dried lavender flowers, dried cloves, a dash of cinnamon, dried rose geranium leaves, and a fixative like orris root, or a few drops of oak moss oil, available from many garden centres. If you don't want to stick to the royal recipe, you can add chamomile flowers, jasmine flowers or bergamot oil as well.

The scent of hops really does relax you. Actually it sends me sort of giggly, but it is also supposed to dampen lust. This may explain a lot about Henry VIII. Use at your own discretion.

An aphrodisiac potpourri

Well, I'm almost serious here. A goodly proportion of men apparently find cinnamon a mildly aphrodisiac scent. This makes you wonder about Christmas cake. Even more women find sensual delight in rose and jasmine. Anyway, mix:

six cups lavender flowers
one teaspoon ground cinnamon
two cups dried jasmine flowers



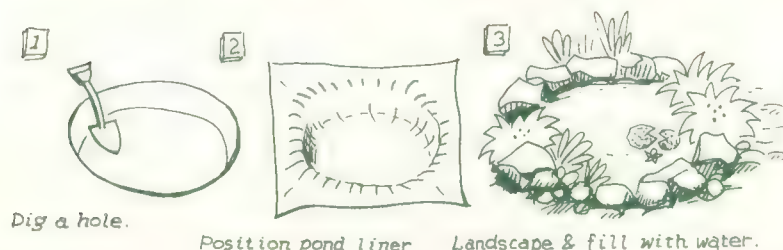
Nothing can beat a good
homegrown tomato.

three cups dried pittosporum flowers
 half-a-cup sandalwood chips
 two cups dried deep red rose petals
 half-a-cup dried evergreen magnolia flowers
 half-a-cup dried violets and
 half-a-cup orris root.

Keep in a sealed jar, and open on those very special occasions.

If you can't get hold of orris root, sandalwood, magnolia, or pittosporum flowers — or just can't be bothered — jasmine, lavender and rose petals aren't bad just by themselves.

Make a pond - the easy way:



Make a homemade pond

Humans evolved in water, and I for one don't feel comfortable too far away from it, even if it's just a lily pond. Water also attracts birds. You try flying over your suburb and see how much water there is to drink or bathe in, unless you count swimming pools, and birds don't.

Ponds are remarkably easy to make, and don't take all weekend either. (Just a large part of it.) Even if you've never hammered in a nail, you can make a pond. It's a bit like mud pies for grown ups.

First, dig a hole. Mound the edges up thickly to make the pond deeper. Make sure the edges slope *very* gradually. Line the hole with old chook wire from the dump, or redo the chook house, or buy it new. This makes it more flexible and less likely to crack.

Buy sand and cement. (You can buy it premixed but it's much more expensive.) Make a good mix of one part

cement to four parts sand. Add water until it's the consistency of a loose cow pat (a bit thicker than cake batter for those who have never seen a cow pat up close). Spread thickly over the wire in the hole. Let it dry a little, then smooth.

This is of course just the basic recipe. Add the odd big rock around the edges, or even in the centre. Make sure the seal is good between the rock and the cement. Seal it half-way up the rock if you can. In any case a few, or lots of, rocks around the edges, with plants in between, greatly increase the attractiveness of the habitat. You can also bung in a few rocks in the middle when it's set, but gently, gently, so it doesn't crack.

Pond liner is even simpler than concrete. Real pond liner is butyl rubber and very strong and resilient, but not cheap. Black plastic is cheaper, but doesn't last and can taint the water too.

Now fill with water. Well-planned lily ponds have a drain at one end so you can let the water out. If you are good with plumbing you'll find several good books in the library that will give you instructions. We just bucket ours out when we want to clean it.

The thickish water, what with weed, algae, and assorted droppings, is good for the garden. And there are many buckets-full. You can also siphon the water out if you want to water an area below the pond. This is the best idea if you don't want to stir the pond up. You can even choose which part of the pond to drain — you can concentrate on the murky layer at the bottom or you can replace the warm deoxygenated water further up.

The easiest way to fill a pond is with a hose. We have a hose connection poking up through the base of ours, and an ordinary microjet attached to that. When the microjet is on, we have a simple fountain. (I say it's ours but the birds probably would claim it too.)

Keep dogs out by saying "No" in a firm voice (assuming your dog is trained enough to recognise the word), or by covering with builder's mesh, placed just under the water level. Builder's mesh may look ugly if you peer close up, but birds love perching on it.



"Happiest is he who hath the power to gather wisdom from a flower"

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Build your own water tank – cheaply

For only \$250 and with five days work, you can have fresh rainwater from a new 3000 gallon tank, complete with top cover. Skim milk is the clue to making this construction watertight.

by Martin Hirsch
Pomona, Queensland.

WATERTANKS in rural areas have been a part of life for generations and are becoming more common in small towns and suburbia where there is a growing awareness of the need to conserve water. Some tanks are installed to supplement existing town water, others to provide a better-tasting alternative to chlorine-saturated tap water.

Whichever way we look at it, water is fast becoming the vital commodity of the late 20th Century. Sources of clean water in dams and rivers are becoming scarcer and the collection of rainwater from roofs makes sense in all respects, particularly as most local authorities have introduced the 'user-pays principle' — and quite justifiably so.

Water should not be squandered on lengthy car washes, dishwashers or hosing paths and driveways, which use horrendous amounts of this life-sustaining drop. These practices need to be scrutinised if we are to retain any reasonable degree of water quality in urban areas.

What you can save off the roof, whether for sole supply or to supplement your water provision, always comes in useful, even if it is just for those who prefer soft rainwater for drinking, cooking and watering young plants.

Although there are all types, all shapes and sizes of commercially-produced rainwater tanks on the market, their price can be a hurdle. This is not a criticism of commercial

manufacturers who turn out a solid product but unfortunately not everyone has the dollars to purchase a tank when they really need or want one.

So one option is to build your own — with a minimum of fuss and for the least outlay in materials and dollars.

Cooran environmentalist, inventor and honorary park ranger, Kevin Sims, recently proudly showed me his creation, a sturdy 3000 gallon model of a concrete tank, complete with artistic decor on the outside walls.

If you have \$250, you can be the proud new owner of a tank. That is all it will cost to build your own medium-sized 3000 gallon tank, complete with top cover and, if you wish, some sort of creative finish.

You needn't be a muscly hulk who trains four days at the gym or have a masters degree in building to attempt the tank; just some commonsense, patience and time will do.

Take a list of the materials to your local hardware or building supplies merchant and bear in mind, some materials you may be able to get secondhand, which will reduce the cost further.

You'll need ten bags of cement, 2.5 cubic metres of coarse sand (maximum particle size 5 mm). These are mixed in a 4:1 ratio for the walls of the tank. The base needs coarse gravel (maximum particle size 18 mm) of which half a cubic metre is quite sufficient.

The latter is mixed at a 4.5:1 ratio for the base. Next, you will need F 52 steel mesh, 6 m x 2 m in total and a 2 m x 2 m sheet of F 62 steel mesh for the base. Chicken mesh (25 mm) is next on the shopping list; you'll need 6 m x 2 m of it, as well as a same-sized piece of hessian cloth. (Hessian sacks sewn-together will do).

Let's just forget the
\$250 and build the tank!





Kevin Sims with the artistic, functional and cheap watertank he built.

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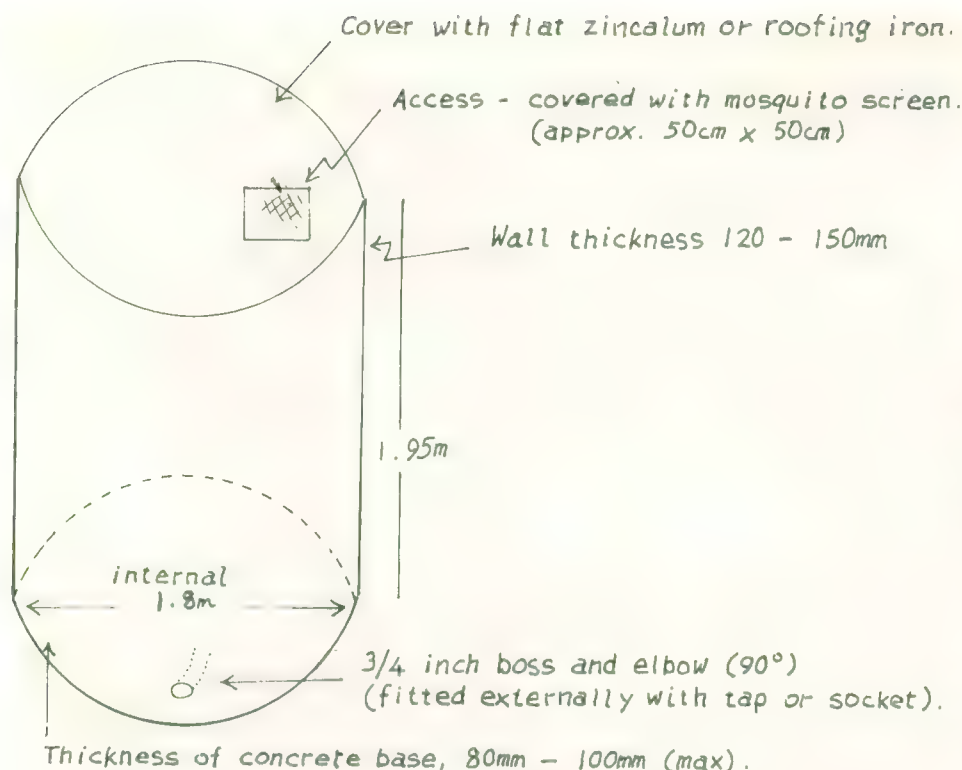
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“KEVTA” (Kevin’s Tank) 300 gallons = approximately 1350 litres.

To make the tank watertight, Kevin recommends skim milk, adding two egg-cups of it to each batch of cement and gravel, or cement and sand mix (a mix equals some 1.75 cubic feet). Brass or galvanised fittings can be used for the plumbing, consisting of a nine millimetre (3/4 inch) boss (socket) plus an elbow (for the inside of the tank) plus a tap or fitting for the exterior. The latter could be either by a bush leading to a pipe or a tap (ball-valve or standard type).

Although Kevin considers the tank cover optional, it is strongly advisable because it reduces the water temperature; it prevents dirt and other pollutants entering the tank,

and it acts as a screen to keep out mosquitoes.

A skilled builder can easily install the roof as a collection area, making the tank self-collecting until hooked up to a gutter or downpipe. This is particularly relevant if you intend to construct the tank for your livestock out in the paddock and have no roofed shelter nearby for collecting water.

Set aside five days

For those attempting the 3000 gallon model for the first time, Kevin suggests that it will take five full working days (that includes some waiting time for the concrete to dry). But a second watertank will probably only take three days. After a hearty breakfast prepare the site for the base, scraping it away to obtain a relatively even surface. Roundness is easily obtained by nailing a long nail

into the end of a batten; this is the anchor hammered into the ground where you want the centre to be.

Next run the batten with another nail or bolt in a circle and you have a round shape to receive the base. However, any mortar running a little outside that circle when pouring the base won’t affect it.

Before it is set, place pieces of steel (4 mm or 6 mm diameter) into it; they need to be bent into U’s, at intervals of 75 mm. This row of U-shaped ‘anchors’ will then be tied together with the steel mesh forming a cage which is about to support the walls of the tank. Depending on how hard the

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ground is, aim for roughly 80 mm to 100 mm of thickness in the concrete base.

Your next move is the cage and commencement for the wall and you may want to rest for the day, allowing the base to dry and gathering your strength for the next day's task — the wall.

Arrange for trestles or a similar structure to clear the top of the steel cage, reaching into the interior and giving you easy access from outside as the walls begin to 'grow'. Lift the steel into place and tie at each 'anchor' as well as overlapping at least one square on the grid and tie that together with strong fencing or tie-wire. This is followed by the hessian which is firmly positioned on the outside of the cage.

Next, start mixing 4:1 cement and river sand including two egg-cups full of skim milk per mixer load and work the layer from the inside of the cage, gradually rising evenly along the entire circumference until you reach the top of the cage which you can cover with more of the concrete mix up to 5 mm above the last visible strand of steel.

After this day, the heaviest in the building period, let the structure once again dry overnight before tackling the outside in the same fashion (same concrete mix) the next day, using a float and hawk ideally until the walls measure some 120 to 150 mm thickness, in layers 10 to 12 mm thick.

Before both layers dry, set some short bolts into the

top perimeter; they help you later to secure some sort of iron roof over the tank.

Absolute watertightness is the essence of a good and lasting tank and Kevin Sims always makes certain this is the case with his. To achieve it, mix some cement with water to a paint-like consistency and add one egg-cup of skimmed milk per bucket to then apply to the inside of the tank, imparting a nice smooth finish as well as preventing organic growths later on. Kevin advises two coats of this skim milk/cement/water sealant.

For those wanting not just the utilitarian finish but a touch of aesthetics introduced to their tank, the sky is the limit. You can paint it like a mural, draw brick-lines on it which makes it look like a well, or apply raised patches of concrete in which you press all sorts of leaves from your garden — which is what Kevin did to his tank.

Watertanks are nice cool places to be near — put a small bench at the base as a place for pensive reflection, or as an aid to climb and check the level of the tank. All you need now is some rain. The first glass from this homemade tank is yours to cherish and celebrate with.

Cheers.

• *The DIY builder, Kevin Sims, is happy to pass on tips and can be contacted on (07) 5485 1096.*



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New members have revitalised the community.

Moora Moora: From Co-operative To Community

by Bob Rich

Moora Moora Co-operative, near Healesville, Victoria.

THE Moora Moora Co-operative near Healesville, Victoria, has been around since 1974. Not a bad record in today's shifting world but is it the same now as it was back then?

Moora Moora is not the same in terms of membership. Two people are left of the initial 12 who dared to put their money where their dreams were. Some of the early members never made the move from the suburbs, perhaps because the reality of cold, mud and hard work was too far removed from the dreams of a country idyll. Others moved away with changing jobs, changing interests, changing perceptions. Some discovered that their ideas of a good life were different from those of other members. Inevitably, there have been conflicts, so some have 'divorced' the co-op.

But there has been a steady trickle of new people. For several years, the pattern has been for an interested person or family to rent a house on the property (or close to it), and to live as part of the community for a limited time. In this way, they ease their way into the culture, get to know the people, and become known by the co-op members. Some move on, others have become members. Still others have bought nearby properties, and share in some of the co-op activities.

One pleasing development over recent years has been greater interest in Moora Moora by young people with little children. The children of longer-established members

Moora Moora evolved from 12 passionate idealists establishing a co-operative in the 1970s based on hard slog and fiery debates to being a laid-back community providing opportunities for a new generation of parents and children.



A festival at Moora Moora in the early days.

have grown. Many have left to study or to pursue their careers, while the younger ones are in high school. It is wonderful to have little children about the place again — as well as the energy, idealism and creativity of their parents. Moora Moora is establishing a new generation.

This is reflected by all types of new developments. Some have been initiated by the newer members. Others are the results of old dreams rekindled by new energy. Once again the co-op is a vital place buzzing with ideas and energy. The regular Moora Moora Festival is an example. For many years the festival has been biennial, simply because organising one is such a lot of work. We have to start in August for an event which runs at the end of February. However, we had an 'extra' festival in 1998, inspired and organised mostly by young, new members.

Then there is a long-term project called 'the co-op garden', 'the horticulture group', 'model farm', or 'the sustainable living centre'. Years ago, we chose land for a co-operative market garden, but even the fence remained unfinished. The persistence of a few longer-established members has been rewarded: through the input of new people this project now has something interesting to show visitors. We have recently welcomed Sally, a dairy cow, and we are seeking a farm manager for a one-day per week paid position co-ordinating all farm activities.

We now have a café — a pleasant meeting place for members and their guests on Saturdays. It is the venue for

a food co-op that has passed its first birthday, and members display craft works for sale.

The change in membership has not been the only development over the years. In the 1970s, Moora Moora was formed by a group of strangers who came together to share a dream, and to change the world by changing their own lives. Coming from the competitive, aggressive, consumerist culture of the suburbs, they had to make rules, set up a structure, and have endless heated discussions over just about every aspect of life. Weekly meetings often ran past midnight, and there was always a long agenda for the future. Debate was usually heated: it was a rare meeting that ended without tears or shouting.

Now, the monthly meetings are mostly about routine business and rarely take more than two hours. Differences of opinion still occur, but they seldom generate as much bad feeling as in the early days. People know each other well, understand each other's strengths and weaknesses, and there is a long tradition of how things are done. Moora Moora is no longer a 'co-operative': a self-conscious, deliberate attempt at co-operation, but a 'community': a social structure like a small village or large extended family.

In the early days, there was the need for rules, structures, procedures. They have been supplemented by customs, friendship and interest groupings, the subtle weave of human inter-actions on many levels.

There is enough variety to suit a wide range of tastes, personalities and habits but everyone holds these basic

values in common: commitment to conservation, community and education. Very few activities involve the whole co-op. Instead, those interested in any aspect of life act together. Many such groups are 'agents' for the co-op as a whole. They then act under the supervision of directors' meetings — the venue where all members can participate in running the community.

One consequence of the organic nature of Moora Moora is that new people need time to join. Joining is not so much a matter of making a decision but of gradually growing into the place and its community, of absorbing its traditions and creating a unique role in the life of this little village. One young man has been the caretaker of our community centre for the past two years. He now wants to join and build a house for himself, so we are looking for a new caretaker.

A whole bunch of lovely new people have found this to be a rewarding way of life. Moora Moora is a place of inspiring beauty, with an opportunity for a challenging but healthy lifestyle, close enough to the city for work opportunities, yet away from the pollution and crowds, with a varied but conservation-minded population.

It still has room for a few new members.

• *Moora Moora Cooperative Community Ltd holds an open day on the first Sunday of each month, starting at 1 pm. No dogs or cats please: we are a wildlife sanctuary. For further information write to: PO Box 214, Healesville, Victoria, 3777; telephone (03) 5962 4104.*

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In My Tropical Garden

Success at Last

by Liz Sinnamon

Kenilworth, Queensland.



AT last I have done it! I've successfully propagated a choko vine. Although many gardeners in Queensland don't have one bit of trouble accomplishing this task, I've never been able to get a vine to grow. It seems so simple — just plant a sprouting choko fruit, stand back, and watch it grow. The ones I've planted previously just shrivel up and die. I think the trick is to give them plenty of water and don't plant the choko too deep in the soil. I've planted mine next to the chook-yard where it will be able to climb up the wire and take advantage of the rotted down chook manure. When a choko vine is established it will produce enough fruit for the average family, and although it dies back in winter, it will sprout again when the warm weather returns. It likes a sunny spot and isn't fussy about soil.

Chokoes are served as a vegetable, and although they have a very bland flavour, their subtle taste is quite delicious if picked when young. During the Great Depression, chokoes (which resemble pears when peeled and cored) were served as a dessert fruit after being cooked in a little sugar and water. I've just planted another crop of corn in the vegie patch. The corn planted in early September is almost ready to harvest. As corn needs about 100 days to mature, this last crop should ripen by autumn. Sweetcorn needs a temperature of 10 to 25° C to germinate the seed, and a growing temperature of 10 to 36° C.



Just plant a sprouting choko fruit and watch it grow!

I find that many popular varieties of tomatoes don't do well in the summer heat of the sub-tropics, but the cherry types seem to thrive. They also resist pests and diseases. The plants self-seed and grow in odd places around the garden. Near the compost bins, in the food forest and the herb garden.

I love beans! But as French beans don't like the heat, I grow dwarf snake beans in summer. They grow into quite a large bush so I usually put a stake at either end of the row and run two or three strings across to keep them from falling over. When they've finished they make a great addition to the compost pile.

Weeds seem to grow overnight in the hot weather, and my time in the garden is restricted because of the heat. It is just too hot outside after about 9.30 am, and we often get thunderstorms in the late afternoon. My solution for controlling weeds is newspaper and mulch — even in the vegie patch. I spread a thin layer of compost over the soil, sprinkle on a few chicken manure pellets and then spread wet newspaper on top. I cover this with a 10 to 12 centimetre layer of mulch hay and hey presto — no weeding necessary.

When I first arrived on my property 11 years ago, I planted several carambola trees. But frosts killed the trees during that first winter.

I had the same problem with mango trees which I also planted then. The garden is now well-established with lots of mature trees providing protection from frost. So I'm going to try planting carambolas

again. The fruit is often called the 'five corner fruit'. It is crunchy and crisp with a very pleasant apple-like flavour. It is also quite high in vitamin C, containing between 14 and 90 mg per 100 gms of fruit. The carambola is native to South-East Asia and grows from five to 12 metres high. It likes tropical or warm sub-tropical lowland conditions and young trees don't like frost. I planted a mango tree two years ago, and made a real effort to cover the tree with a feed bag on frosty nights. It survived and is now about three metres high. I'll do the same thing with the young carambola trees.

They can be planted out anytime of the year, although September to April is recommended. I'm going to plant four trees along the boundary fence, leaving a space of six metres between them. They are a very attractive evergreen. Although they are quite slow growing, they are long lived and resistant to wind damage. Because of this they make a very suitable wind-break. Carambolas don't like wet feet, which can be a problem during summer in the tropics, so the place I've chosen has well-drained soil and a gentle slope. Another great thing about this tree is that it's not subject to pests and diseases so it is a perfect choice to grow organically. It's not fussy about soil, but does best on a moderately acid soil with a pH 5.5 to 6.5.

Another job I'm tackling this summer is the pawpaw patch. I planted out several female trees in the food forest

area, but they haven't thrived. I don't think they get enough sun. So I'm going to start a few more in a sunny place. Pawpaw can be either exquisitely delicious or rather bitter. I grew the last ones from seeds that a friend gave me — I haven't been very impressed with the taste of the fruit but this could be due to lack of sun.

I think it's always best to buy pawpaw seedlings from a reputable nursery. These seedlings are grown from specially selected trees that are chosen for good fruit flavour and cropping ability. There are usually three seedlings in each pot and I don't separate them, just plant them as they are. This way any male plants can be pulled out as only one male is needed for every eight or nine female plants. As the trees are very shallow rooted — they can fall over in wet and windy weather — a protected position is best. They also like a sweet soil — pH 6.5 — and they absolutely love compost. I spread two or three bucketfuls around each tree twice a year and keep them well mulched. They're really quick growers and will produce their first fruit in about 12 months. The main pests of pawpaw are red spider mite and fruit and vegetable bugs that attack the growing tips of the plant. If this problem occurs I spray with pyrethrum every two weeks until the bugs disappear.

I intend being a bit lazy this summer, and just sit back enjoying the garden.

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Damaged earth walls

Jo from Tassie sent me a photo of the weather-damaged earth wall of her shed, asking for advice on repairing it.

Dear Jo,

Thank you for the lovely chatty letter. You didn't mention the material the walls are made of. Is it mudbricks? Or rammed earth? From the photos, it could be either.

The solution to your problem with the shed is basically the same in either case. You need to remove the loose stuff from the surface, and replace it with the mix you used for the house.

This can be done in one of two ways. You can set up sturdy form work, braced from the outside, and fill from above. If your walls are mudbrick, just put in the mud in a layer that's not more than 200 millimetres high, tamp it well down, and cut it at about brick-length intervals (staggering the cut from course to course). If the walls are rammed earth, then make up a mortar with higher cement content (with my soil, rammed earth is okay with one of cement to 20 of soil. For a mortar, I make the mix 1:10). You can go any height, limited only by the form work, and you don't need to cut the fill — there is no appreciable shrinkage.

If form work is a difficulty, you can do it by the handful, using the same mix as above. When you have excavated the wall back to a solid surface, wet this thoroughly. Make a mudball from your mix, and throw it at the wall so it sticks (this is better than smearing). After every few balls, use a concreter's float to work it well into the surface. (You can make up a wooden one: nail a short length of wood into the middle of an offcut of floorboard or similar flat board. This gives you a flat surface with a handle on top). Put on a 25 to 50 millimetre layer. When the layer has set, but is still flexible enough that you can dent it with a thumb,



tap all over it with a rubber mallet or similar, lightly compressing it, bonding it to the surface below and eliminating any cracking.

Do this for layer after layer, until the surface is vertical. You can get the appearance right at that stage.

I once used the second method on a section of 300 millimetre (one foot thick) rammed earth wall that was soft right through. I removed 15.2 centimetres (six inches) from one side, replaced it, then did the same from the other side!

Using form work is a lot less labour, and goes faster, but there is the problem of keeping the form in place. I can't give you specific advice on this, without knowing the circumstances and the resources available to you.

There is a third option. It's only a shed that was a learning experience, and the weather damage seems superficial. You could extend the roof line to provide more protection in the future, scrape off the loose stuff, then render the now thinner wall. Good luck, I hope your life goes well.

Bob Rich.

Cyclones, ventilation and rams

Dear Bob,

I appreciate your writings on building. In 'The Earth Garden Building Book' you write of the cyclone defensive house. I like the sound of a truss roof frame and a hip roof, but you mention a minimum of projections and discontinuities. So far so good. However, a low energy solar house needs to have the space between ceiling and roof well ventilated.

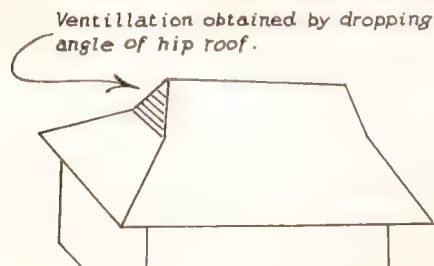
What about a continuous vent along the ridge? Or I've seen some houses where the hips allow a small gable at the top where there is ventilation? (I don't know the right name for this, see the sketch). I don't think much of those flimsy extraction type fans that whirl with the wind (Whirly Birds?).

I would like to make an earth brick press. Where can I get plans for a CINVA ram? I suppose there is a patent on the Dalrac. I want to make paving bricks. More power to your arm.

John, Mangalore, Victoria

Dear John,

The roof shape you refer to is called a 'Dutch Gable'. It is an attractive roof shape that is stronger than the standard gable (because the truncated triangle is a bracing). However, it is not as strong as a full hip roof. The point of a hip roof in a cyclone defensive design is that the shape maximises inherent strength while minimising wind resistance.



In a cyclone situation, you certainly don't want a gale to whistle through your attic! Roof vents are important in a hot climate (which is of course where cyclones occur), but they needn't be as big as you have drawn yours. Part of cyclone-proofing is to equip doors and windows with storm

shutters. Vents into the roofspace need the same, so when the high winds are expected, you block them off.

By the way, I doubt that you're at risk of a cyclone where you are!

The CINVA ram was developed at CINVA, which was a UN research organisation in Colombia. Unfortunately, it's now defunct. They made the plans generally available to anyone, and deliberately didn't patent it. Also, as I understand it, patent rights refer to the sale of objects. You can copy a patented object for your own use and aren't breaking the law unless you sell it.

I don't know of any current source of dimensioned drawing of a CINVA ram or other earth brick press. You could try Going Solar*, or the library of the Alternative Technology Association, 247 Flinders Lane, Melbourne. The drawing on page 145 of 'The Earth Garden Building Book' is to scale. You could take measurements from it. There are photos in *Bulletin No. 5: Earth Wall Construction* (CSIRO Division of Building, Construction & Engineering). The CINVA ram was deliberately made to be easy to construct by people with minimum welding skills. You need offcuts of suitable steel plate, probably available free from the discards of any engineering firm, and an electric welder. All the best,

Bob Rich.

* *Going Solar* sell the Dalrac rammed earth press for \$675. Phone (03) 9328 4123 for details.

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A proposal to dam the Kimberley's Fitzroy River at the magnificent Dimond Gorges threatens the fragile ecology of the region. Local and national environment groups have combined with Aboriginal groups and pastoralists to fight the proposal.

THE rugged Kimberley region of north-western Australia is a vast natural area of international significance. The Fitzroy River, one of Australia's largest unregulated wild rivers, dominates the Kimberley's landscape, and stretches from the arid, rocky outcrops in the east, along the Fitzroy Valley, to the shallow King Sound estuary in the west. With the surrounding lands, it supports a wealth of natural values including a unique variety of fish, rare and endangered species and a range of valuable gorge habitats.

The Fitzroy River

In full flood, the waters of the Fitzroy can stretch for kilometres. During the dry season, the river becomes shallow and slow moving, and in some areas recedes to isolated waterholes.

The Dam Proposal

Western Agricultural Industries Pty Ltd (WAI) is currently undertaking a feasibility study for a dam and irrigation proposal which involves:

- construction of up to three major dams in the upper Fitzroy and Margaret River catchments. The first would flood nearly 1000 square km of natural beauty at Dimond Gorge, within the traditional lands of the Bunuba people;
- construction of up to 600 km of earthen canals and a weir at Fitzroy Crossing;
- extraction of underground water resources;
- acquisition of large areas of land to support almost 225,000



The proposal by Western Agriculture Industries Pty Ltd (WAI) to dam the Fitzroy River would destroy the integrity of the Kimberley landscape. Photo: S. Neville.

- hectares of irrigated agriculture (mainly cotton);
- free allocation of bulk water entitlements (worth more than \$600 million) to WAI for resale to individual irrigators.

Irrigated Agriculture

The proposal to dam the Fitzroy River relies on the establishment of an irrigated agriculture industry south-east of Broome. Potential crops include vegetables but more importantly for the developers — cotton. The success of the proposal depends on the use of a genetically-engineered pest-resistant cotton, known as Bt cotton. Studies have shown that Bt cotton may not be viable because its benefits are likely to be short-lived. As pests become resistant to Bt cotton, farmers will have to resort to spraying chemical insecticides.

A better alternative

It is not necessary to have development on this scale in the Kimberley region. Tourism, among other things — when properly conducted and monitored — has the potential to provide local development in an environmentally and culturally sensitive manner.

The Australian Conservation Foundation supports ef-

forts to ensure the proposed dam on the Fitzroy River is never built, says new ACF Executive Director, Don Henry. Speaking after a five day visit to the Kimberley in June 1998, Mr Henry described the project as "the other great environmental flashpoint" in Australia along with the proposed Jabiluka uranium mine within Kakadu National Park.

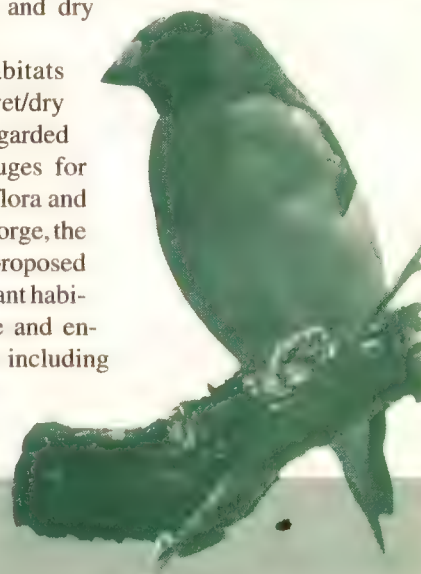
"The Fitzroy is one of the last great, wild rivers left in Australia. It must be allowed to flow free for all time. It has cut spectacular gorges through the ancient King Leopold Ranges of the rugged Kimberley, and harbours unusual freshwater stingrays and sharks. Threatened and endangered species such as the Gouldian Finch and Purple-crowned Wren inhabit the riverine vegetation which would be destroyed by a dam," Mr Henry said.

Ecological diversity of the Kimberley

Generally the Kimberley landscape ranges from dry savannah grasslands, open woodlands, riverine vegetation,

pockets of ancient rainforests, to coastal mudflats and extensive mangrove communities, providing rich and diverse habitats for the many fauna species that are found in the region. Perhaps the most well-known Kimberley plant is the extraordinary boab tree, with its natural capacity to survive the extreme wet and dry season patterns.

Gorge habitats — rare in the wet/dry tropics, — are regarded as important refuges for many species of flora and fauna. Dimond Gorge, the site for the first proposed dam, is an important habitat for many rare and endangered species including the Gouldian Finch.



What you can do...

Write to Senator Hill, Federal Minister for the Environment, Parliament House, Canberra, ACT 2600, outlining the following points.

The Federal Government should publicly rule-out any possibility that federal funds will be made available towards the Fitzroy irrigation proposal.

Point out that any Commonwealth or WA Government assistance towards the project would breach the COAG Water Resources Policy which states that all new water infrastructure must be both economically viable (that is, no subsidies) and ecologically sustainable.

Ask the Federal Government to examine opportunities for a Commonwealth Environmental Impact Study. The Gouldian Finch, which breeds in the area immediately upstream of Dimond Gorge, is listed under the Commonwealth Endangered Species Act. Similarly, Geikie Gorge, just downstream from the

proposed dam site, is listed on the register of the National Estate for a broad suite of conservation values.

Write to Richard Court, WA Premier, c/- Parliament House, Perth, WA, 6000.

Become a member of your local environment group and get active.

Purchase a copy of the stunning *Save the Fitzroy River* poster which features the river as it flows through Geikie Gorge. The poster costs \$20 plus \$5 posted in a mailing tube, and is available by ringing the ACF on 1800 332 510.

You can join Environs Kimberley for only \$10 per year (PO Box 309 Broome, WA, 6725). And you can buy their fabulous "Get Your Cotton Pickin' Hands Off The Fitzroy" hemp T-shirts, for \$20 each plus \$5 postage from the PO box above; they come in natural colour, navy, green or black. Their "Dam — No Way" stickers cost \$2 each.

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Jillaroo Farm Hints

Edited by Jill Redwood



If you want to know the easy way to drive nails home, use spare poly pipe or what to do with holey gumboots then read on.

Jill Redwood welcomes readers' suggestions.

Reused roofing iron

To secure a couple of poles together or fix a rail, forget the shop-bought strapping. Flatten out that bit of roofing iron that's bound for the tip and cut strips from it. The only draw back is the sharp edge that's left after cutting. Once it's fixed tightly in place it shouldn't be a problem. Use the longer galvanised clouts to nail it down.

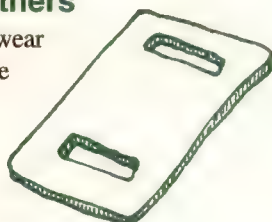


Greasy nails

If you're working with seasoned hardwood timber (recycled of course!), about the only way to get nails to drive home is to use a lubricant of some sort on them. To save having to keep a dab of grease, a lid of oil or a bar of soap around the work area, drill a hole in the end of your hammer handle and keep a dab of grease in it. Some builders even run a nail through their hair before hammering it in. If you have greasy locks this does the same thing.

Protecting stirrup leathers

Stirrup leathers tend to wear in two spots; where it sits on the metal bar of the saddle and where they pass through the 'eye' of the stirrup. You can alter the position of the buckle occasionally, thereby moving these two wear-prone spots. Alternately you can make a simple protection strip that sits between the metal and the stirrup strap. Cut a rectangle of leather about eight centimetres long and a bit wider than the stirrup strap. Use leather from some old boots, for example, an old footy or a leather handbag from the dump. Cut two slots and feed the leather strap through. This then takes all the wear and will double the life of the stirrup leathers.



Stitching bird netting

A quick way to 'stitch' bird netting over a small tree is to use thin short twigs. These are usually lying about under your feet. Join the netting together and thread a seven to ten

centimetre stick in and out between the holes a couple of times. This holds the netting together and can be easily undone when the net is ready to come off. If you can check the netting daily, it may save a bird from getting tangled and dying a slow death.

This has only happened once to me but it was a very sad lesson.

Egg carton insulation

Looking for some cheap insulation? Egg cartons or the larger egg trays are great for both sound and temperature insulation. Secure them in place with glue or thumb tacks. I used these on the inside roof of a van I once travelled in to Outback Australia. They worked a treat.

Gutter leaf excluder

A cheapo little leaf excluder for your gutter's down pipe can be improvised from an egg whisk. Just bung it in, handle down.

Last issue I asked readers for innovative ideas for reusing farm 'junk' such as short lengths of poly pipe, holey vacola drums or buckets, holey gumboots, car wheel rims and plastic plant pots. Here's some of the ideas that have come in:

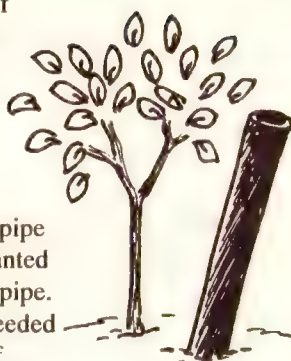
Farm junk lives again

What to do with a holey bucket? Make the hole about 2.5 centimetres (1 inch) in diameter, fill it with perlite, and use it to sprinkle around plants to protect them from snails. The snails won't crawl over it because it sucks up all their slime! The perlite flows quite nicely through the hole, making it easy to distribute.

What to do with a length of poly pipe? Trim to 120 to 150 centimetres (4 to 5 feet) long and use as a didjeridu!

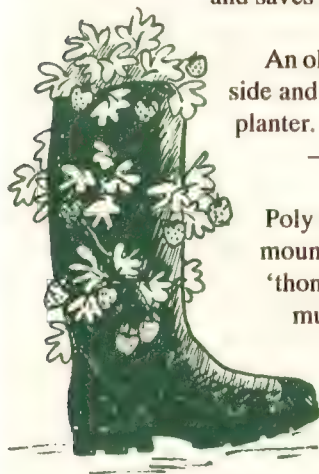
—Russell Edwards, Sassafras, Vic.

I push short bits of poly pipe down into the soil near newly planted trees and pour water down the pipe. This gets the water to where it is needed and saves run-off.



An old gumboot? Cut holes down the side and turn it into a strawberry or herb planter.

—Rob Harman, Ramornie, NSW.



Poly pipe cut into short lengths and mounted on a frame becomes a 'thong-a-phone'. This is a weird musical instrument belted with a thong to make a great sound. Depending on the diameter and length of each pipe, a different note

is made. Experimentation and a good tuner is needed. A whole octave can be made with a few metres of poly.

Some weird ideas for using old wheel rims. String them up on a frame and belt them with a stick. (Not your classic farm tools but great fun all the same!)

—Barb Knudsen, Maleny, QLD.

Wheel rims can be fixed to a fence and painted to make an unusual yard enclosure.

—Muriel White, Byford, WA.

Larger diameter poly pipe can be embedded into a mudbrick wall as a mail holder or a wine rack.

An old gumboot leg can be cut into strips to use as tensioning straps or patching tractor tyres. A scarecrow in gumboots looks great, too.

Plastic plant pots with the bottom cut out or short lengths of the wider poly pipe can be used to protect seedlings.

A wheel rim can be recycled as an air vent in a house if fly wire is fixed over the holes.

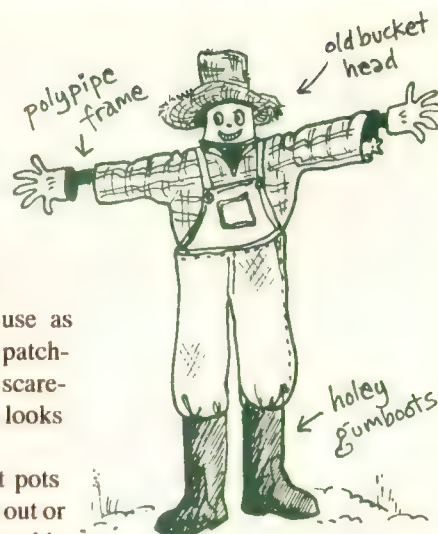
—B Sutherland, Kilmore, Vic.

Poly pipe makes an excellent 'thwacking stick' for handling cattle. It makes a loud noise but doesn't bruise them.

Pieces about one-metre long can be used to make the air vents for a compost heap. Stand them upright and build the compost heap around them. Pull them out later to leave neat ventilation holes down to the bottom.

—Anne Stelling, Beechworth, Vic.

• Thanks everyone for the ideas. The winners will be sent a u-beaut home-made ocky strap. But don't wait for the incentive of a prize, readers' farm hints are always welcome. The address is: Jill Redwood, Private bag 3, Orbost, 3888 (Email address: croeg@bigpond.com).



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Questions & Answers

... with Jackie French



If you have a problem with green ants, black spot, red wine stains on the carpet or yellow leaves on the camellias, write to Jackie at PO Box 113, Braidwood, NSW, 2622. All questions will be answered in this column and no answers can be sent individually, unless you're under sixteen or it's about wombats.

Growing tea

Dear Jackie,

I am interested in growing tea but do not know very much about this. I have read that it comes from a camellia plant. Which camellia, specifically, does tea come from and where can I find more information?

Joyce, Riverside, Tasmania.

Dear Joyce,

Tea comes from *Camellia sinensis* or *Camellia thea* (Chinese and Indian tea respectively). We grow both here – the Chinese tea seems much more vigorous than the Indian, but that might just be the vagaries of our climate or our cultivars.

The bushes look like most camellias, though the leaves are a bit thinner and more elongated than most, and the flowers are very early – late summer to autumn flowering here. They look like camellia flowers – of course – but are very small and white. The bushes are much less spectacular than ordinary camellias, but still quite pretty.

They usually need to be grown in semi-shade – the amount depends on where you live – the hotter the climate the more shade they need. Ours are in afternoon shade here, but in very hot summers they do get burnt patches on the leaves. I really should have put them in deeper shade. (That may be why the leaves are thinner because leaves sometimes do thin or curl to minimise sunlight.) In cooler summers (ours was like a volcano breathing down our necks last year) – especially in high altitudes – they grow in full sunlight.

Soil must be well-drained with no bogs or clay; sandy soils must be well mulched; soil must be kept moist, not wet, and well fed. Don't add lime – or wood ash – you'll probably kill them. There are special camellia foods on the market,

but I find hen manure, compost and mulch work well.

As for picking the tea – you pick the tiny new leaves and shoots and sometimes the odd very young twig as well. Dry them... slowly. (Don't take them in at night. They need to get wet with dew a few times and start to rot just slightly and you have green tea. Alternatively gather them together and cover them with a damp tea towel until they just start to rot – a bit like lawn clippings heating up in a pile on the grass – and then separate and dry them, and you have semi-fermented tea, more like the ordinary ocker tea most Australians drink.

I've also laid mine on a pile of fresh lawn clippings and covered them with a damp teatowel for two days, then dried them. This gave the best 'fermented' result of all.

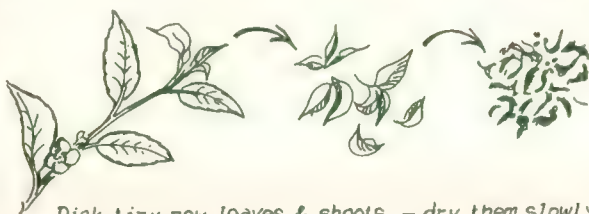
Many nurseries sell tea camellias. I know a catalogue I read sometime this year had them, but even though I've leafed through them I can't see it. I promise I'll find it by the next issue.

The best herbal tea I've drunk – that is the closest to ocker tea – was made from lemon verbena leaves, with just a small bit of peppermint (not culinary mint – which tastes like mint sauce – or spearmint, which tastes like toothpaste, you need black or white peppermint).

Drink it black, I much prefer green tea to fermented tea, anyway, as there is much less tannin. Although it's usually drunk black, if you make it strong enough you can add milk and sugar, if you like.

By the way, there is more health research coming out in favour of tea – fewer stomach, bowel and other cancers, kidney stones and it is helpful for asthma sufferers. There are low caffeine teas around, but I don't know where to buy the bushes. (If anyone does I'd be very grateful if they'd let me know. I'd also like to find a mail order source for coffee bushes. (I lugged ours home on the plane, pretending they were really a bunch of flowers.) All the best.

Tea (*Camellia sinensis*).



Pick tiny new leaves & shoots – dry them slowly.

Chooks or ducks?

Dear Jackie,

Hi, Jackie! I am a newcomer to *Earth Garden* and enjoy the great magazine you people put together. *EG* was recommended by a close friend who subscribes every year and enjoys reading it.

My husband and I have just purchased a 16.2 hectares (40 acres) property at East Seaham, N-S-W, and wish to create our own little 'Old MacDonald's Farm'.

We would like to have either ducks or chickens to recycle scraps, and as pets. Also to provide eggs. We have a few questions to ask and any information would be gratefully received.

- Which do you recommend (ducks or chooks), and why?
- Do ducks and chooks get along together when free ranging?
- Which breeds do you recommend?
- Where could we purchase them?
- When should we feed them?
- How often do they lay eggs?

Whichever animal we decide on they will have plenty of space and dams. They will be penned at night. If we decide on having both chooks and ducks they will be penned separately at night. Any information will be appreciated.

Tracy, Warners Bay, NSW.

Dear Tracy,

I like chooks. No, that's an understatement. I am addicted to chooks. Ducks I can take or leave. I also prefer chook eggs to duck eggs; I can kill a chook (or a rooster anyway) but not a duck. Ducks know what's happening to them, and so do all the other ducks, which means you can soon get an awful lot of drakes if you're breeding your own.

Chooks and ducks do share some of the same diseases, so they should be kept separate, though I know of many people who do keep them together. Ducks also must have water – they'll survive without it, but they won't be happy – and what's the use of living the good life, if your animals don't? So ducks need a dam, preferably with an island where they can shelter from the foxes.

Remember, too, that ducks 'splodge' great liquid droppings that attract flies, and as ducks can get very attached to you they'll splodge right up on the verandah.

Breeds? Dunno – everyone has their favourites. Just go to a few country shows and see which breeds you fall in love with and *that's* the sort of chook or duck to get.

Isabrown chooks lay the most gorgeous brown eggs, but they're pretty dumb chooks. I adore Australorp chooks – a tinted egg, just off-white, and gorgeous fluffy knickers; Light Sussex have their devotees, as do Rhode Island Reds and White Leghorns, the two most popular backyard chooks, and that is before you even look at various types of Bantams, Indian and Old English game birds and the fluffy pets like

Silkies and Frizzles – why not get many different varieties? Then you can choose a different shade of egg every morning and spend hours debating the relative temperaments of your

flock. (One of Bryan and my favourite activities at breakfast)

Where to purchase? Locally. Forget about large breeders. I've always found that locally-bred chooks are hardier, and you'll have made a useful local contact to ask for advice. Put an ad in the local paper or at the local shop. Alternatively bail up an exhibitor at the aforementioned local agricultural show.

When should they be fed? Whenever they want to. You'll never see a corpulent free range hen or duck. Leave food in hoppers so they can eat when they want to. Ask your local stock and station agent for a hopper and see what types they offer you. (You hang them up so it's harder for rats to eat the food.)

How often do they lay eggs? Two birds will give you about ten eggs a week, but fewer in the winter and in the heat of summer unless – and this is where you need more information than I can give you in a letter. See *'The Chook Book'*, available from *Earth Garden* (see page 88 to order). PS: I'd choose geese over ducks but again they are only



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happy with water. If you don't have a dam or creek or don't want the ducks in it then you could have a think about guinea fowl, pheasants, turkeys or other birds that are happy with green fields instead of lakes. All the best.

PS: Don't get either chooks or ducks until you've finished their dwelling and a fox-proof run and fenced off your vegie garden.

Blue tongues

Dear Jackie,

I was reading an old EG and noticed a question about no-dig gardens and snails. I al-

ways use no-dig gardens as I loathe digging. The old 'soil mover' – the

potato – is a good plant to get your mulch and soil into a meaningful relationship. Anyway why I'm writing is that a friend of mine picked up a

blue tongue lizard off Windsor Road and brought it over. We put it under the mulch of the no-dig vegie garden and before I knew it there was mum and more than five babies. I was never bothered by snails again. As long as there is mulch the blue tongues remained and lived on snails (and strawberries). I use straw mulch usually – and lots of it – so it's cool underneath, warm in the middle and perfect for lizards. It has become very interesting fossicking under the straw for spuds – carefully!

Fran, Rouse Hill, NSW.

Dear Fran,

Thank you! We used to have a blue tongue that lived in our compost bin. It was just nicely warm for a comfortable lizard abode. Then one year it must have got too hot or cold because he moved out.

I find that after a couple of years the snails, lizards, rats, kookaburras and the others get into a comfortable relationship and we don't have too many snails. But when



Encourage blue tongue lizard families to stay.

I build a new above-ground garden in a separate part of the garden, it can take a while for the population of predators to build up enough to eat the snails, so I need to do a bit of snail control, especially in spring when the plants are moving but the lizards aren't yet. I don't bother with snail control any other time of the year, so the populations of both pest and predator can reach an equilibrium.

Slaters

Dear Jackie,

I was wondering if you had any information on slaters (woodlice). A grey insect about one centimetre long, lots of legs, a segmented body which curls up into a ball when disturbed. I was under the impression these were friendly humus-eating insects which break down organic matter but the last lot of seedlings I put in were just about wiped out by these critters chewing them off at the base of the plant. I tried to keep the mulch away from the seedlings but it didn't work. I have thousands of them through my garden. Any suggestions would be much appreciated.

Leanne, Newman, WA.

Dear Leanne,

Slaters do break down organic matter but they can feed on seedlings, especially in damp, shady places and if the seedlings are at the soft, delicate stage. They also munch their way through roots of staghorns, orchids and some ferns.

Snail pellets containing methiocarb will kill slaters, just bung them in an ice-cream container (eat the ice-cream first). Cut two or four holes to let the slaters in, and then tape down the lid so other animals can't get to them.

But slaters usually build up where you have tan-bark mulch which hasn't quite decomposed, or wood-heaps or ancient wooden fences or compost heaps which are just piles



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of rubbish, or builder's rubble, or even rock gardens. If you have a plague of them, try to work out where they are breeding – then keep other possible breeding sites away from your garden.

You can also splint seedlings with two or three toothpicks or put circles cut out of old softdrink bottles around them pressed down into the soil. All the best.

PS: Slaters aren't insects – they're crustaceans – a sort of cousin of prawns. I wouldn't try serving them in garlic sauce though, they may have been feeding on something toxic to humans.

Citrus leaf miner

Hi Jackie,

We enjoy reading your EG column and would appreciate your advice. The enclosed citrus leaves are affected at the same time each year. The tree hasn't borne fruit but it is two metres tall. Kajabbi has a red clay soil. What is it? How do we treat it organically? Thanks very much for your time!

Ean, Naomi (and children).

Dear Ean, Naomi, and kids,

Your citrus leaves were a pale green dust by the time I opened the letter. If this was the problem when you sent it to me, the answer's simple – the trees are very, very dead.

(Please everyone, *don't send me leaves or weeds!* They hardly ever get here still recognisable and sometimes we don't collect our mail for a while – or open it for even longer.)

I think I made out a tracery on one of the bits of leaf, which might be mite damage or citrus leaf miner. Of the two, I think leaf miner is most likely. It is a tiny pale moth that lays eggs along the mid-rib of the leaf, then the larvae tunnel into the leaf and munch away. The adult curls the leaf over to make a shelter while it turns into a moth. The trees can be



Insect eating bats for night moth control.

badly stunted as a result.

The best solution would be neem oil spray or, failing that, pest oil spray. Choose one that can be sprayed at any time of the year, not the old-fashioned sort that could only be sprayed when temperatures were under 24° C.

Spray according to directions, then repeat three weeks later. Because the beasts tunnel through, they can be very hard to eradicate without using a systemic pesticide containing dimethoate.

Light traps turned on at night are used by commercial growers to trap the moths, but that's not much use in the backyard. A good supply of insect-eating bats is probably the best night-moth control. All the best.

PS: Try giving your tree seaweed spray or other foliar spray every three weeks, too, (but not at the same time as the oil spray) for extra feeding and cossetting. Also feed the base of the trees very well – nearly all backyard citrus I've seen have been underfed and the hotter the area then the faster they grow and the more tucker they need – and the faster much is broken down. A good scatter of elderly hen manure will do no harm at all. But the foliar seaweed spray will probably be needed to coax the tree into realising it really is alright again – the pests have gone and it can start growing properly.

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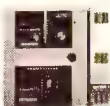
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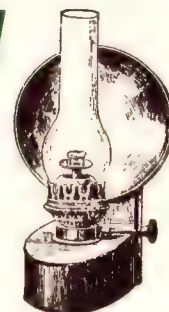
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Home Power Troubleshooting

If you have a home power problem you haven't been able to solve, write to Earth Garden, RMB 427 Trentham, 3458, and we'll have an expert grapple with your problem free of charge.

by Peter Pedals

Nimbin, New South Wales.



It works fine when the sun shines

A reader finds that his solar system is inadequate in winter, and seeks advice on methods of improving it.

Hi Peter,

We currently have a property at Daylesford, Victoria, running 8 by 64 watt Solarex panels with a 400 amp hour battery bank of Trojan t105 cells.

As we don't live at the property anymore we rent it out to tourists. The system handles everything fine in the summer months but in winter — well the guests are using up to 100 amp hours at 24 volts. This means that the batteries are getting run down too far. In order to keep the system up and running we are looking at 1) replacing the old diesel genset (\$3600); 2) installing an interactive inverter charger for \$6000 (Trace) or \$4200 (Siemens Sunsine). Would we be better off installing extra panels instead? Can you recommend something else? I measured the solar input for two days during the past week and found only 30 amp hours went into the batteries. We are on a hill and seem to get a large amount of cloud in winter.

David, Victoria.

Dear David,

The problem that you describe of having plenty of power to spare in the summer months and battery troubles due to lack of solar input in the winter months is a common one for most 'stand alone' solar folk in the Australian southern States or anywhere in the world in the temperate zones.

With 'stand-alone' I am not referring to the fact that you are alone and capable of standing on your own two feet, but that you have a power system which is not grid-interactive (that is capable of buying and selling power to the national grid) or grid-tied as they call it in the USA. This problem may not be an easy one to solve and a bit of lateral thinking may provide a different solution in each scenario.

In your letter you have already suggested two possible solutions. One is the purchase of more solar panels to see

you through the winter months. The other is the purchase of an inverter that is capable of turning a diesel generator on and off as required.

As Alan T Gray had already pointed out (in preliminary advice), for your first solution you will need a lot more solar panels, but not necessarily a lot more battery storage. Batteries use power to function, some of the energy used to charge batteries is used up in the making and breaking of chemical bonds and some of the energy is 'wasted' by the battery in what is referred to as self-discharge rate. Despite what many people think, batteries do not store electricity. A battery converts electrical energy into chemical energy when the battery is charging and then converts the chemical energy back into electrical energy when the battery is discharging.

Any lead-acid battery will discharge at a rate of one per cent per day or greater, depending on the type of battery it is and its age. As the battery gets older, its self discharge rate increases, to the point where eventually you may have to scrap the battery if it becomes too wasteful of power if it hasn't died from other causes in the meantime. It is not just age in terms of years that causes this kind of deterioration, but the kind of use and abuse that the batteries get in their life.

Just like certain levels of self-abuse such as smoking, excessive drinking, poor diet, for example, will cause more rapid physical ageing in humans, the use of contaminated water (as opposed to distilled or demineralised water), excessive charging and discharging, frequent and deep discharges will all cause premature ageing in batteries.

Some people may come up with the solution for a lack of power by simply just adding more battery storage. But if you get the gist of what I have just been saying, doing so may in fact be a step backwards. There needs to be an optimum relationship between the size of the loads, the amount of energy capable of being delivered by the charging source and the battery bank size. Because your system works quite adequately in the summer months, I would suggest that the battery bank may already be of a suitable size

Your battery is getting very old, so naturally its self discharge rate will increase!

I know exactly how it feels!



unless your loads increase dramatically in the winter months. In the winter months it is your charging source that reduces in output and it is this that needs to be increased in order to save your batteries. Hence solution number one, buy more solar panels.

Option One: Buy More Solar Panels

Buying more solar panels may be a solution, but if you are talking about a lot of cloud cover in winter, I would again agree with Alan T Gray's assessment of it not being the solution that "I'd rush into because you'll be burning off power in summer like crazy". When I design a solar power system I base it on average solar radiation figures for each month of the year for the location for which the system is being designed. I usually design for four or five days autonomy to a maximum discharge of between 50 per cent and 70 per cent. It is not a very good idea to totally discharge a lead-acid battery.

Not having your particular load data, I cannot carry out such an assessment, but I would not be surprised if you would need perhaps three or four times as many solar panels for the winter months, as the days are shorter, your loads have probably increased and solar panels produce considerably less power in overcast conditions. I would hope to find a more palatable solution than this.

Option Two: Interactive Inverter Charger

Many of the more expensive and fancier inverters are based around computer components, both to determine the actual sine wave, wave shape as well as a host of other functions such as degree of sensitivity to small loads to switch on from standby mode, turning specific appliances on and off at predetermined times and turning a generator on and off, based on the time of day, battery voltage or calculated battery amp-hour capacity.

The up-front cost that you quoted may be similar to the real cost of buying more panels. One difference is that you have a constant on-going cost of buying fuel, as well as having a noisy, polluting and inefficient solution.

On a more positive note it certainly is an excellent

way of looking after your battery bank without having to increase your personal workload much beyond needing to guarantee a constant supply of fuel to the generator. A Selectronic SA21 sine wave inverter in combination with a Woods 24 volt 80 amp charger would be able to do most of what the Trace or Siemens Sunsine can do for less (about \$4000).

The Selectronic inverter can turn the generator on when a predefined voltage or a predefined low amp-hours reading is reached but then the generator would stay on for a pre-determined duration rather than when the appropriate voltage or amp-hours is achieved.

If you are quite happy with the inverter that you already have, then the same generator control can be achieved with a fancy solar regulator. The BP FBR regulators have been able to perform this function for a number of years now. The smallest of the range is able to handle a solar array with an output of up to 40 amps at a cost of about \$540.

These regulators can keep a record of battery volts, maximum and minimum volts for the day or week, incoming amps, accumulated amp-hours for the day and much more. The inverters I discussed in the previous paragraph can also provide a lot of this kind of information.

The new Plasmatronics PL regulators now also have generator control functions, being able to turn the generator on at a predefined low amp-hours reading and to then turn it off again when the amp-hours reaches a preset value. The 20 amp Plasmatronics regulator sells for \$290 and the 40 amp version sells for \$380.

Option Three: Other Energy Sources

With sufficient solar panels to meet your summer loads, it may make a lot of sense to look for another energy source, preferably one that is more readily available over the winter months. When you mention lots of cloud cover through winter, the question arises whether this cloud cover is associated with windy conditions or plenty of rain.

You may find that by adding a wind turbine or a micro-hydro turbine to your existing power system that this could get you through the winter months without having to

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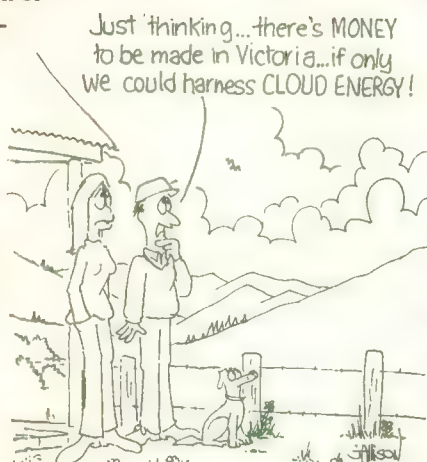
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rely on fossil fuels. A reasonable-sized wind turbine may cost you a similar amount to an inverter, but the micro-hydro option will probably cost you less than the diesel generator, assuming that you have access to a creek or spring with sufficient head. For the micro-hydro to be worthwhile you would only need sufficient water flow through the winter months when the solar doesn't keep up.

Another possible energy source could be a wood-fired steam engine, which could also be used to heat water using the waste steam and to warm the air in the house by connecting the house to the steam shed with air ducts. The biggest problem with steam engines is that I don't know of anyone who has ever managed to automate them and they tend to be a bit labour-intensive.



With both the radio and reading light situation the most energy efficient option would be to have them powered directly by the battery which would require having to have a 24 volt reading light instead of a 240 volt light and having a portable battery powered radio connected to the battery supply via an appropriate voltage converter. We* sell a voltage converter that will supply 3 volt, 4.5 volt, 6 volt, 7.5 volt, 9 volt or 12 volt from a 24 volt supply and at a very high level of efficiency.

Similarly, you would not use a 240 volt clock radio that would require the inverter to stay on and consume power 24 hours per day. You can buy a range of portable stereos that can be connected to the battery supply that have a programmable timer with an LCD clock built-in and can turn on the radio, CD player or tape deck at any pre-programmed time. If you

like to be able to record television shows to watch at a later date, it would be worthwhile considering buying a TEAC model MV-1414P 34 centimetre AC/DC TV and VCR combination* which is able to keep the time and record a program at the chosen time without requiring a 240 volt supply. If you were to do the same with a standard 240 volt TV and VCR combination, the inverter would have to stay on the entire time that you weren't going to be there in order to record the program, which can add up to quite a considerable amount of power.

If you wish to use a computer, you may argue that a desktop computer is less cost than a laptop or notebook computer. Considering that the laptop computer uses one-tenth of the amount of power that the desktop computer uses this cost comparison is suddenly weighted very much in favour of the laptop computer.

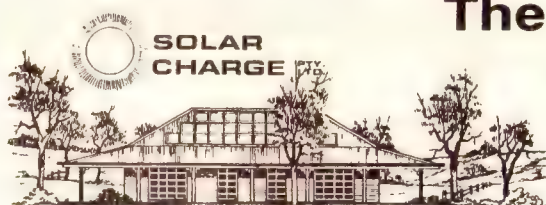
** at press time TEAC advised 'Earth Garden' that they are awaiting stocks of a new model, the MV-1416P which will supersede the model above.*

Option Four: Reduce Power Consumption

I am not talking about living in the dark and not using any appliances every winter, but improving on energy efficiency and reducing power consumption without affecting lifestyle. With most household appliances, energy efficiency appears to be of the least concern to the manufacturer, whereas user convenience tends to get priority treatment. Hence putting a heating element into the walls of a fridge so that they don't accumulate frost is considered a good selling feature even though it is counter-productive to the operation of the fridge to keep things cool and causes the fridge to consume more energy to achieve the same result.

Many solar households have everything dependent on an inverter to provide power. This means that if you wish to do something that doesn't require much power, such as listening to the radio or just having one light on to read a book, the inverter may be using many times as much power as the radio or the light requires just to stay in the on mode.

The closer the continuous inverter rating is compared to the actual load requirement the more efficient it will be.



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As a rule of thumb, the desktop computer would require something in the order of 60 to 80 watts worth of solar panel for each hour of the day that you use it, whereas the laptop computer could run all day long on one single solar panel. The desktop computer would need an inverter costing between \$500 and \$850 to supply sufficient power whereas the laptop would need an inverter costing only \$100 if you are not able to run it directly from a DC supply. So if you need to provide your own power to run the computer, the laptop computer will work out considerably cheaper.

Your average 240 volt washing machine consumes about 600 watts whereas the Fisher & Paykel Smart Drive washing machine consumes 80 watts when washing and 165 watts when spinning, giving an average power consumption of only 100 watts. A half-hour wash cycle per day will then only consume as much electricity as a 20 watt light bulb being used for two and a half hours or as much power as an 80 watt solar panel will put into the battery in about one hour. A Hoover Breeze model U1432 upright vacuum cleaner consumes 410 watts and does a better job of sucking up dust from the floor than any other vacuum cleaner rated up to 1200 watts according to a recent *Choice Magazine* report.

There are probably many more examples of selecting appliances specifically with the goal of reducing power consumption and very often this can work out cheaper than staying with existing appliances and having to buy extra solar panels to cope.

Option Five: Changing the Angle of Your Solar Array

You didn't indicate in your letter at what angle from the horizontal (presumably pointing due north) your solar array is mounted. If, for example, your solar array is angled at 30° from the horizontal, by increasing that angle to 60°, you may increase your solar input in mid-winter by as much as 16 per cent. If you had a solar tracker you may get up to 30 per cent gain in mid-winter compared to the solar array mounted at 30° whereas the solar tracker would only give you 13 per cent gain compared to the solar array mounted at 60°. If you consider that a solar tracker may cost you \$1000 and you have eight 64 watt solar panels giving you a total of 512 watts, you may find that buying an extra panel (for example, an 80 watt solar panel for \$670) is more cost effective. The expected gain from the solar tracker in mid-winter in your case would be 13 per cent of 512 watts which will yield an extra 66 watts, presuming that the solar tracker doesn't malfunction. A solar tracker facing the wrong way is worse than having no tracker at all. Please note that all these figures I am quoting are for Victoria and the situation may be entirely different in a different location.

I hope that out of all these options you find a reasonably cost effective solution to your problem.

* *Rainbow Power Company, 1 Alternative Way, Nimbin, NSW, 2480; phone (02) 6689 1430.*

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Fruits of fertility

Pomegranates grew in the gardens of Egyptian pharaohs. The fruit is an ancient symbol of fertility. And its charm remains.

by Keith Smith
Sydney, New South Wales.

THE pomegranate (*Punica granatum*) is one of the oldest fruit trees in cultivation and is often considered to be the Biblical 'apple' that Eve used to tempt Adam in the Garden of Eden. Because of their yellow or red fruit, packed with hundreds of grain-like seeds, pomegranates were a symbol of fertility throughout the ancient world.

Pomegranates are frequently mentioned in the Bible. "Thy lips are like a thread of scarlet, and thy speech is comely; thy temples are like a piece of pomegranate within thy locks," runs the Song of Songs (4:3). Carbonised fruits have been found in Bronze Age archaeological strata at Jericho.

Fruits, slightly larger than an orange, hang on the outer branches of trees after the leaves have fallen, until late autumn. Tender edible seeds and rich pink or bright crimson flesh are contained in small cells and the smooth, leathery skin turns orange to purple-red when mature. The juicy pulp has a pleasantly sweet-sour taste and is eaten fresh or squeezed for juice.

Pomegranates are native to the arid highlands of Iran and Afghanistan, but were naturalised in early times throughout the Mediterranean, in North Africa, Egypt, Turkey, Israel and far away in India and China. In Egypt, pomegranates grew in the garden of Rameses II (1292-1225 BC) and were found in the tomb of the sun-worshipping pharaoh Akhenaton, who died about 1362 BC. In Greek mythology the pomegranate was the fruit given to Venus by Paris.

The Latin name *punica* refers to the Phoenician colony of Carthage (now Tunisia) in North Africa, from which pomegranates were taken to the Roman Empire, probably during the Punic wars (218-201 BC). Pliny the Elder (AD 77) called the fruit 'apples of Carthage'.

Trees are deciduous, small and bushy, reaching from 3 to 4.5 metres in height, with twiggy, thorny branches and long, narrow, shiny, dark-green leaves that turn yellow in autumn. The first crumpled, scarlet flowers show in spring or summer three to four years after planting and fruit ripen five to seven months later in autumn and winter.



Pomergranates.
The Fruit Garden, London, 1904

London plant collector John Tradescant the Elder (c1570-1638) purchased a pomegranate tree from the French royal arborist Jean Robin at the Jardin des Plantes in Paris, which he planted at Hatfield House, Herefordshire. He sent an account of six shillings for "on[e] pomgranet tree with many other trees at the Root" to his employer Lord Henry Cecil on 3 January 1611. "The wilde [pomegranate] I thinke was never seen in England, before John Tradescant, my very loving good friend brought it from the parts beyond the Seas," wrote John Parkinson in *Paradisus* (1629).

Pomegranates were among the first fruit trees introduced to Australia, probably from the Cape of Good Hope (South Africa). "The pomegranate trees are not very large but were well loaded with fruit," wrote French botanist Don Luis Née after his visit to the garden of the governor of New South Wales at Parramatta (west of Sydney) in 1793.

"The older gardens around Sydney almost invariably had a pomegranate tree which was used not only as a fruit tree, but as an ornamental shrub, for which purposes, its attractive bright red flowers made it very showy," wrote Sydney nurseryman Herbert J. Rumsey in the *A to Z of Australian Fruitgrowing* (Dundas, NSW, 1921). Rumsey said pomegranates were sold in Australian shops until the 1880s but after that were less popular.

You see pomegranates piled up on round platters in Turkish markets and thirst-quenching pink pomegranate juice (dibs roman) is sold in the streets in North Africa, Turkey and Iran. In Australia, you can buy bottles of pomegranate syrup in Armenian and Iranian shops. We use the syrup as a cordial for summer drinks, while Iranians cook meat in it or add it to stews.

Fruits are a major source of vitamin C and are brilliant in fruit salads. You can extract the juice by rolling the fruit on a hard surface to crush the seeds and flesh. Push in a straw and drink it. In the Middle East, the juice is used for making sauce and bright red jelly. Seeds can be sun

dried and crushed into pomegranate leather.

Growing

Pomegranates yield best where summers are hot and dry and winters are mild, but will grow anywhere but very cold places. They are drought-resistant and succeed in the hot arid inland when irrigated. Trees bear well in the south-west of Western Australia, throughout South Australia and Queensland, in coastal New South Wales (even in the Blue Mountains) and at Tabilk and Maryborough in Victoria.

In the Middle East, pomegranates are often interplanted with olive trees. They are long lived, productive trees and do not require cross-pollination.

Seedlings are propagated from hardwood cuttings, six to eight centimetres thick and 25 centimetres long, taken from wood that is a year old. Plants sucker freely, so shoots are also propagated by layering.

Plant seedlings four to five apart or in hedges two to three apart or dwarfs, one metre apart, in soil enriched with nitrogen fertiliser such as well rotted cow manure or blood and bone.

Cut fruit from the stalks when the skin turns brown-



**John Trandescant
the Elder
(1570 – 1638).**

orange or red and store in a cool dry place for several weeks. Fruit left to ripen on the tree will often split.

Cut back branches lightly after the leaves drop to promote new growth. Heavy pruning deters fruiting, but suckers should be removed regularly.

Pomegranate seedlings are available from Shipard's Nursery, PO Box 66, Nambour, Qld, 4560. Seeds are available from Phoenix Seeds, PO Box 207, Snug, Tasmania, 7054. Send a SAE when inquiring.

Varieties

'Dwarf' ('Nana') grows only 30 to 100 centimetres tall, with small leaves, orange-red flowers and small acidic fruit, 2.5 to 3.8 cm in diameter. This compact tree is ideal for small gardens and for

tubs or pots.

'Paper Shell' has juicy, sweet, medium-sized fruit with soft seeds. The thin rind is pale yellow with pink-red cheeks. A good bearer.

'Wonderful' is an early variety with very large, bright crimson fruit, about 12 cm in diameter, juicy and with good flavour. It is the standard variety in California, growing from the moist sea coast to the hot desert.

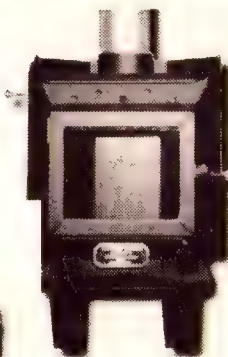
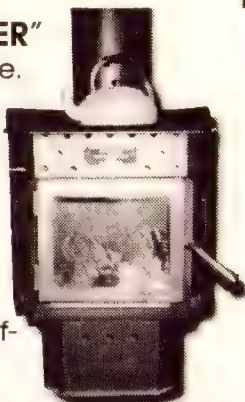
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A do-it-yourself solar tracker

Solar trackers maximise the efficiency of solar panels by following the sun the whole day long to boost power generation. Ian describes how to build your own tracker.

by Ian Strawbridge

Twin Falls, Ellenborough, New South Wales.

SOLAR power — the very name suggests something wonderful and so it is! Anybody running solar power will tell you that. But with most things in life the placement of the panels can often be somewhat of a compromise.

It seems that unless you live in the desert there will always be a time when no matter where you put your panels, you will have problems with shadows or you will find that the ideal location is too far from where you want to use it. This is especially true if you have fixed panels.

Probably like most people, I would watch the sun rising and setting and the output from the panels trickling away. They are only really on the boil from around 10 am to 2 pm or so. We have a 12-panel array consisting of 80 watt BP solar panels and originally they were fixed in rows of four on three fixed mounts. Of course, solar-trackers are not a new idea, but like most things we don't mind having a go at it ourselves.

First of all a warning — if you cannot competently weld or you are not confident in constructing such a unit — please don't!

Such a tracker has about 100 kg of panels (and a bit over \$7500 worth!) and mounts sitting on it, and I estimate the

tracker weighs in at about 100 kilos itself.

Probably the most daunting aspect is the wind loading — don't underestimate the amount of concrete sitting under it which is required to hold it in place! (Ours also has guy wires for added insurance.)

Now we're cooking

The best thing about tracking is that the moment the sun hits the panels in the morning it will be making a very reasonable output. In summer it is quite capable of generating good power from 7 am to 7.30 pm in the evening. Normally the batteries (ours are 1100 amphour BP Solar) will be fully charged by midday. Now, in the evening we often use an electric rice cooker which previously would take one per cent (about 10 amphours) of the charge, but with the tracker it makes no difference! All of this is while we are running a normal 240 volt refrigerator, microwave and the like! (This is while still maintaining the batteries in the +90 per cent charge range to prolong their life.)

Details

The solar tracker movement is controlled by the two programmable outputs of the Selectronics SA31 Inverter. These are used as time controllers. There are three states used:

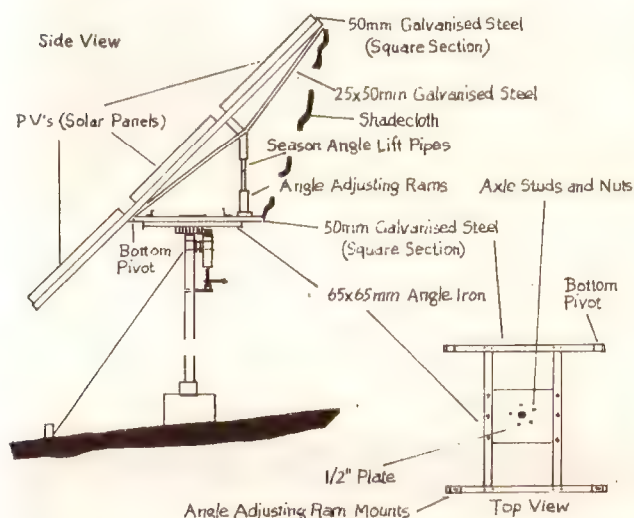


Fig. 1: Tracker

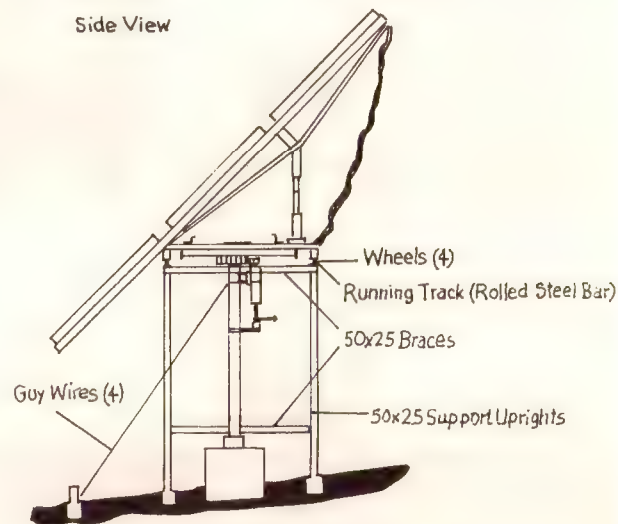


Fig. 2: Tracker Support

Summer standard time:

Control	Direction	Time	Duration
All Controls OFF	EAST	1830-1100	
Control 1 ON	NORTH	1100	7 hrs/30 mins
Control 1 and 2 ON	WEST	1530	3 hrs

Winter standard time

Control	Direction	Time	Duration
All controls off	EAST	1630-1000	
Control 1 ON	NORTH	1000	6hrs/30mins
Control 1 and 2 ON	WEST	1430	2hrs

We use only three compass directions. There are some small gains to be made by having mid-points, however the extra complication and power used to drive the array is probably not worth it. Of course the times

used would change depending on the season, but the most important aspect is that both controls must be off at exactly the same time for the array to home to the east position (that is reverse).

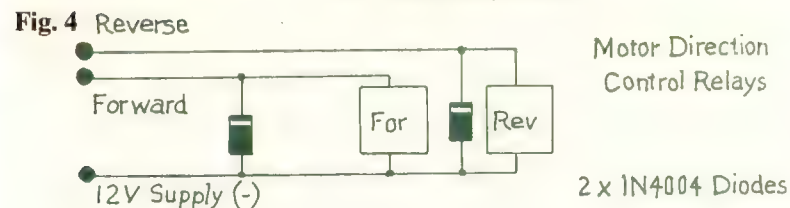
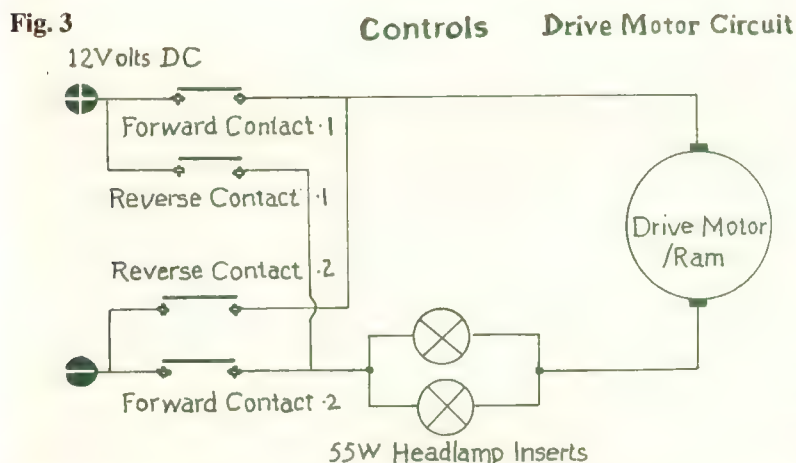
If you don't have a Selectronics inverter don't despair, the same result can be achieved with two timers. The control outputs are isolated from the inverter by using 24 volt 40 milliamp relays. This is so that no harm can come to the inverter from any external problems!

From these relay outputs is a relay logic chain which selectively engage driver relays. An output is provided from the driver relays, which correspond to the compass directions. At each of these points on the tracker there is a micro-switch. When the tracker reaches the desired point the micro-switch interrupts the drive to the motor and the tracker stops.

The motor used is an electric ram that previously was used for adjusting the height on a computer monitor! There are two 55 watt car headlight lamps in series with the motor, these provide protection for the motor in case it stalls. (Refer to motor drive circuit.)

There are also another two of these rams used to vary the angle of the array. When the seasons change — just hit the switch and watch the ampmeter that is sitting there for maximum output — no need to worry about what the angle should be.

The guts of the tracker is a Commodore rear axle assembly, which was obtained from a local wrecker. I turned down the neck of the axle behind the flange to fit the drive cog that I already had. Another axle has a drive cog on it with a lever assembly connected to the ram. An alternative is to use an entire diff,



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with the sun gears welded up and using just one axle. The diff would become part of the support structure.

The main reason for using a car axle is because they are designed to handle a considerable load (the car!) and are cheap. A new axle bearing is cheap insurance. In my case the axle tube fitted nicely into some thick wall tubing 50 mm by 6 mm (2 inch by 1/4 inch) thick pipe that was handy. If you cannot get thick wall tubing you will need to increase the pipe diameter by 125 mm to 150 mm (5 to 6 inches) to handle the load. But the support has to be guyed for helping with the side loading imposed by wind forces. In addition the whole rotating assembly has additional support provided by a metal-ring assembly with wheels onto the tracker base.

Construction

As you would probably appreciate this is a project for people who are adventurers, and it's important to mention that you must construct the tracker so that once it is finished on the ground, you can pull it apart into basic sections to lift up into place! Even more exciting will be putting the panels up on it once it is finished. That is why ours was built near and over a shed — so I could stand on it!

We also used the frames that the panels were mounted on to simplify construction and because we already had them. It's probably easier to look at the diagrams to see the construction details. The length of the upper frame support would vary depending on how many panels you plan to have on it. Don't forget to include a generous spacing between your panels (at least 200 mm) to help reduce the wind loading.

I used a Ford shock absorber as a damper via a bell-crank to help the behaviour of the tracker. When you turn off the drive motor with over 100 kgs turning, it doesn't want to stop in a hurry. The damper helps to stop the tracker smoothly and eliminates any oscillating motion.

The drive ratio used is 2.5:1 which is roughly one-quarter of a turn at the drive axle which equates to about half a turn or 180 degrees (east to west) on the tracker. Most of the metal was purchased new to ensure no fatigue problems, with the exception of the drive mount plate. This is a 12 mm

There's something in the wind...

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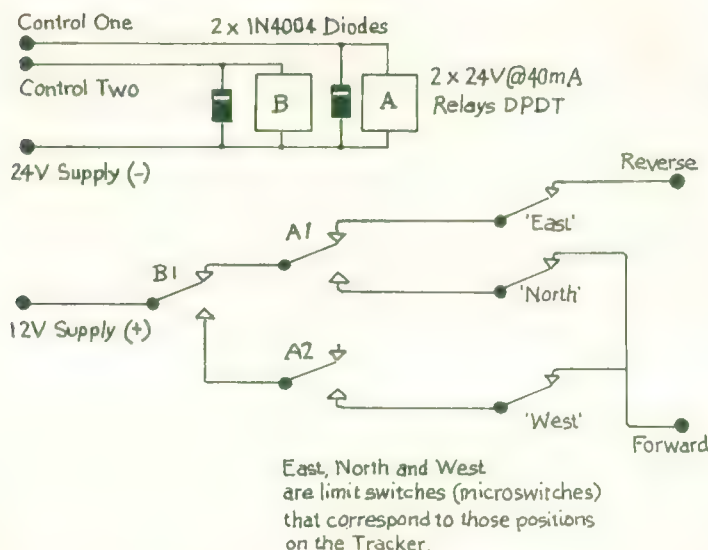
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Fig. 5 Logic Circuit



(half inch) plate and was purchased as an off-cut to help save costs. (In fact if you go with your measurements they may even cut the metal to the required lengths — this will save you heaps of work!)

Controls

The electrics are in two sections — the inverter interface or logic circuit and the motor drive circuit. I put the motor drive circuit in the shed near the tracker. It should be placed near the motor or ram and its power source to minimise power losses.

You should end up with two power supply wires and the wires to operate the motor direction relays. (Supply positive, supply negative, motor forward, motor reverse and common (-12 volts.) Of course the motor control relay contacts must be rated well in excess of the drive motors stall current (the

current that the motor would take with the armature locked).

In our case the stall current was 20 amps, so I used relays with 30 amp contacts for long life. It is also preferable to use two separate wires for the negative 12 volts supply to the motor circuit and the control circuit.

Logic Circuit

Whether you use your inverter or timers a logic circuit works out what the array should be doing. The outputs from the inverter are called control one and control two. I have not shown the construction details of the logic or control units as anybody who is capable of building them will have their own ideas on how to make them! (You might get help from your friendly neighbourhood sparky.)

• Ian Strawbridge (Website address: www.webmaker.com.au or E-Mail: webmaster@webmaker.com.au).

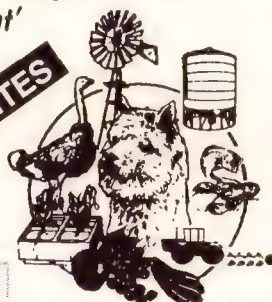
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Government Lumbered In Forest Court Case

A Victorian appeals court has upheld the dismissal of charges against Senator Bob Brown and other logging blockaders arrested in East Gippsland last year. On page 48 of EG 101, *Earth Garden* published an article about the Goolengook logging issue, and thanks to the hard work by Melbourne barrister and forest campaigner, Brian Walters, the conclusion has been a legal success for hundreds of Goolengook blockaders.

A VICTORIAN Government attempt to overturn the dismissal of obstruction charges against Greens senator Bob Brown, failed in the Supreme Court on 24 October. The Government had asked Justice Murray Kellam to overturn the dismissal of charges against Senator Bob Brown and two co-accused, Alistair Knight, and Emma Hess (the Branch Co-ordinator of The Wilderness Society in Melbourne), by a magistrate. The three denied obstructing a forest operation on 13 June last year along the Goolengook river near Orbost in Victoria's East Gippsland oldgrowth forests.

Justice Kellam upheld the dismissal, saying that the legislation at the time, while confusing, stated that the correct heritage buffer zone on either side of the river was 200 metres, not 100 metres as the Government claimed. He said it was the logging that was unlawful, not the obstruction of it by Senator Brown and his fellow-accused.

Senator Brown said outside the court that the Premier, Mr Jeff Kennett, should issue a "statement of shame" to apologise to the hundreds of citizens who opposed the logging.

"For years, they have been illegally logging some of Victoria's prime heritage forests," said Senator Brown. "They've broken their own laws. It's a measure of the Premier as to whether he can apologise. We're delighted with the outcome."

Ms Susan Crennan, QC, for the Director of Public Prosecutions, told the court during the appeal hearing that the magistrate had erred in determining the width of a heritage river corridor in the Goolengook forest block in which Senator Brown and the two protesters claimed unlawful forest operations were taking place.

Ms Crennan said the magistrate accepted evidence in which a ruler was used on a map of the area to determine the width of the heritage corridor, but instead the whole map and the words on it should have been considered. She said the correct width of the buffer zone was 100 metres, which meant the logging operation was lawful. She said a detailed forest management plan "to preserve the local environment" had been drawn up. (The area has now been logged and woodchipped.)

Melbourne barrister, Mr Brian Walters, for Senator

Brown, said a 200-metre buffer along each side of the river had been authorised by the Heritage Rivers Act, which came into existence three years before the forest management plan. Mr Walters said forestry staff had allowed logging in an area that Parliament had said should not be logged.

The court success concludes many months of hard work by Senator Brown, Brian Walters, and Margaret Blakers, Senator Brown's indefatigable adviser. The Victorian Government now faces court costs approaching \$100,000 for what Ms Blakers labelled their "vindictive behaviour".

What you can do

- Write a letter to the editor of your local paper about logging in native forests. Spread the word that native logging is not necessary because Australia has enough plantations (1.1 million hectares) for its timber needs.
- Buy Canon 100, Nautilus or MoDo copy paper (not Reflex — it's from Amcor).
- Buy Steinbeis (a post-consumer waste paper available at Friends Of the Earth, phone 03-9419 8700).
- Refuse to use Kleenex, made from Otways Ranges high conservation value forests — buy Cosco Holdings Products if you need tissues.
- Visit the Otways Forest on a 'Last Chance Tour'; for bookings phone (03) 5237 7413.



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Solar hot water ... it's a gas

by Pippa Tweed

North Melbourne, Victoria.

FOLLOWING September's dramatic gas plant explosion, many Victorians found themselves waking up to cold showers. Invigorating? Perhaps—for the short term. As it stands, cold showers and a limited menu have become a Victorian reality. First Auckland's electricity grid failure. Then Sydney's water became undrinkable. Now Victoria loses its centrally distributed gas supply.

Whereas economic hardship will be faced by many families and businesses, not all industry has suffered from the gas emergency. Going Solar, in North Melbourne, has been supplying solar hot water and renewable energy products since 1978.

This latest energy crisis has spawned dynamic public interest in solar hot water, causing our phone lines to run hot! Going Solar staff have been inundated with hundreds of enquiries from desperate customers fed up with their cold water torture. This in turn has created an obvious increase in public interest in all facets of renewable energy.

Many customers are now wanting solar electricity in addition to solar hot water. Could this be the stimulus we need to question our reliance on fossil fuels and travel towards a sustainable future?

Privatisation has stomped its way through many inappropriate public assets. The quality of service that was

practically guaranteed by both Jeff Kennett's State Government and the 'Pro Uranium' Federal Government has turned out to be nothing more than predictable political deception. So don't panic, all you lovely Victorians. If you're not happy with cold showers, then simply go solar!

"Apart from regrettable loss of life and impact on businesses, the gas crisis has otherwise been great for the environment. It has forced people to buy solar hot water systems and to have short cold showers or water-saving basin washes. People are forced to become very innovative to get a hot shower. Poly pipe, hose, black plastic, clips, copper pipe and solar showers were all big selling items. People employed to deal with the community needs were expecting most calls for help to come from the elderly. In fact, they actually coped much better. Having been through two World Wars and a Depression, they treat hot showers as a luxury rather than an essential. That says a lot about our own 'toughness', eh? We baby boomers seem to have become soft and fully dependent on non-essentials and convenience lifestyles."

—Jill Redwood.



Photographs by Stephen Ingrouille

During the gas crisis some anonymous wag altered a gas billboard which by coincidence, adorns the side of Going Solar's North Melbourne building (close up at right).



The Great Solar-Powered Outback Escape

In May 1998, Earth Garden publishers Alan and Judith Gray took their three children camping — through central Australia to Broome and home via the Nullarbor Plain — for three months. They travelled with friends and family and road-tested the new Canon solar-electric panels powering a Davy Industries portable, 12 volt fridge.

In this article Alan describes a creative use for the solar panel.

by Alan T Gray

Trentham, Victoria.

“STOP! Something’s flown off the roof!” Judith called out over the din of the corrugations on the four wheel drive goat track we were traversing in our family ute, with the Hurren family behind us in a Landcruiser Prado. Four adults and seven children, our little band of Outback travellers is in the middle of three deserts on the ‘Gunbarrel Highway’ between Uluru in the Northern Territory, and Wiluna in Western Australia.

We are about 700 km from Wiluna with another couple of days ahead of us on the worst corrugations we’ve ever struck in the Outback. They are about 15 centimetres high and a whole metre apart, so it’s like an endless series of narrow speed humps, with the occasional detour onto ground that often turns out to be worse than the main track.

This is probably the remotest area we’ve traversed in Outback Australia: when we crossed the Simpson Desert a few years ago we were ‘only’ 300 or 400 km from the nearest town or station at any point on the trip. This time, we’re more like 600 km from Carnegie Station, the oasis we’re aiming for once we’ve crossed the edge of the Gibson Desert, the Great Victoria Desert and the Little Sandy Desert.

So far our camping trip has gone remarkably well. In three months away from home in central Victoria we’ve travelled 15,000 km and camped out in some of the most spectacularly remote country on the planet. The children love the campfire cooking, sleeping in swags, climbing rugged hills and gorges, learning about Aboriginal culture and Dreaming stories, fishing in wild places, and helping with cooking, pitching and breaking camp, and — it must be said — getting out of the classroom!

For Judith and me it’s another chance to indulge our great passion for Outback camping travel. We often reflect on how lucky we are, enjoying the unforgiving but constantly-chang-

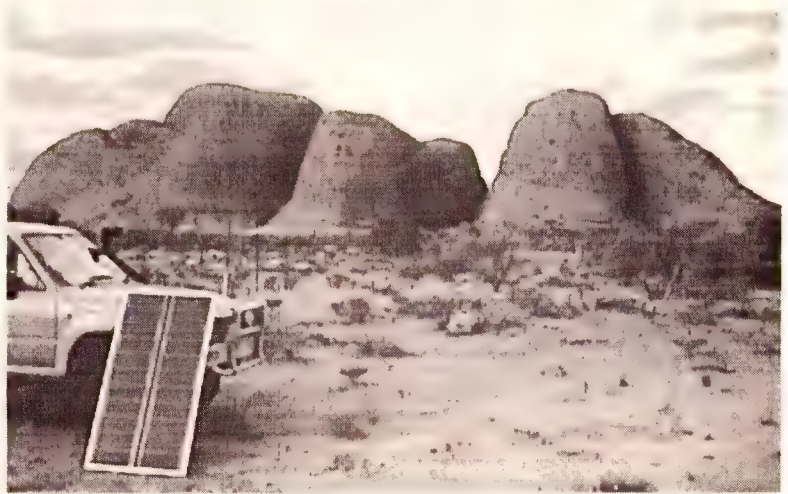
ing stillness and beauty of Outback Australia. “See it, before the rest of the world discovers our secret”, is what we often say to people who ask us why we don’t get bored “looking at the same old Outback scrub”. Once you’re out there you quickly learn that in many parts of the Outback, there’s a constantly-changing landscape with few people, a rich Aboriginal heritage of ownership and care for the land, and a wonderful chance for cheap, healthy, family holidays.

No panel damage

As we slowed down and radioed to the Hurren family behind us that we had to stop to see what had flown off the roof racks, the constant jarring in the ute got no better. These were particularly rough corrugations because travel was no more comfortable if you sped up to 90 kmh to drive over the top of them (as you often can with Outback corrugations), or if you slowed down to 25 kmh to try to minimise the jarring.

One of the brackets on our roof racks had broken from the constant vibrations. Our solar-electric panel caught the wind and flew off, landing on the side of the track after making a 10 cm hole in the side of the road on impact.

We had bought the Canon panel to power our 12 volt



The Gunbarrel Highway starts at the Olgas (Kata Tjuta, or ‘Many Heads’) near Uluru, and continues through three deserts to Wiluna in Western Australia.

fridge so that we wouldn't flatten our starting battery when we camped at one spot for more than a day.

We found that we only needed to run the Davy Industries 45 litre portable fridge for a few hours a day, but we didn't want to take the risk of camping somewhere remote, then finding we'd flattened the car battery by running the fridge for too long.

Incidentally, the fridge was put through one of the roughest field tests imaginable — three months in the back of the ute on all types of terrain — and it performed superbly. It never let us down, and we always had fresh food and cool water whenever we wanted. When the fridge was in the back of the ute, we plugged it into a 'cigarette' lighter socket and fuse, wired to the car battery. When we stopped the car, we connected the solar panel to the car battery with alligator clips, and we could move the fridge into the shade under the car, by plugging it directly into the car cabin cigarette lighter socket.

I was dreading picking up the solar panel, because they're not designed for such rough treatment, but a quick test with our little multimeter showed that, remarkably, the panel had sustained absolutely no damage. Here was a living proof of Canon's sales pitch: their triple-junction amorphous panels are manufactured on a continuous stainless steel bed, and cut to size. They have no glass face and, as we had inadvertently proven, are incredibly tough.

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Further into the desert

The Gunbarrel turned hard: it started to rain that night, and the next morning, after a very wet pack up, it became obvious that we were facing about 600 km of track that had virtually turned into a river. The water was up to a metre deep and these 'puddles' extended for hundred of metres at a time, before emerging onto slippery, muddy ground and then dropping into the next puddle. The kids thought it was exciting when we careered into the water, trying to keep up enough revs and momentum to make it to the other side. We usually made it through, but it got tougher and tougher for the Prado — which was towing a half-tonne camping trailer. Even for our high-clearance Hilux it was getting to the edge of manageability: the Hilux is a four-cylinder diesel vehicle without the 'grunt' of petrol cars.

I genuinely thought we would be stuck in the desert and would need to use the Hurrens' Flying Doctor radio to call for help. Of course, we had all the safety gear and enough food and water for about ten days, but even so none of us fancied the thought of camping in the mud for a week until the desert dried out.

Towards dark, we started to get to drier ground. I began to think that maybe we'd make it to Carnegie Station, which is still about 450 km from Wiluna. That night, about 9 pm we pulled into the station yard, never more relieved to see a cattle station in our lives. The warm Outback hospital-

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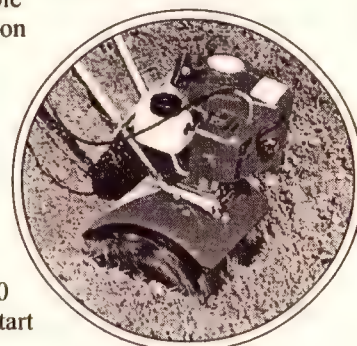
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Tony Hurren, with the solar panel just visible on top of his car, after a day keeping the Prado battery alive.

ity at Carnegie was a relief and a pleasure.

The next morning we headed off for the next day of our saga, thinking that the worst was behind us. As the day wore on we had little dramas, like the Prado fishtailing off the track and needing to be pulled out with a tow rope, but overall, it was far less eventful than the day before.

That's . . . until the alternator died on the Prado. We later discovered that the mud and water the day before had clogged up one of the brushes, but at the time, we were still hundreds of km from Wiluna, and another 500 km to Newman — the nearest auto electrician.

We used jumper leads from the Prado's second battery

to run the car — until dark. The Hurrens couldn't turn on their headlights because this would have drained their battery very quickly. So, we drove side by side so the Hurrens could use our headlights to find their way. Finally the second battery was flat too, and we ended up towing the Prado and trailer, in four-wheel drive, through the mud, into Wiluna.

The final problem

The next day we faced a new problem: how to get the 500 km to Newman, without towing all the way. We could jump start the Prado, but we couldn't keep it running because the alternator simply couldn't supply enough charge to the battery. Every time we jump started the Prado the engine would quickly die, as it had the night before when being towed through the mud to Wiluna.

This is when we struck Judith's brilliant solution. We were pondering our problem in the Outback sunshine, when she said:

"Why don't you tie the solar panel to their roof, and connect it to the battery with the alligator clips?" We all looked at each other: mostly I was thinking that this was too elegantly simple to possibly work.

It worked.

We drove 500 km to Newman in the brilliant sunshine, without the Prado stopping once. When we got there and found the auto-electrician, he simply said: "That's brilliant!"

We thought so too.

- *For more information about Outback camping trips in central Australia, phone the Northern Territory Tourism Commission on freecall 1800 621 336.*
- *For more information about Canon solar panels, or to contact your nearest Canon dealer, phone Canon on (02) 9805 2076, or write to: 1 Thomas Holt Drive, North Ryde, NSW, 2113.*
- *For more information about the Davy Industries fridges — both portable and for independently-powered households — phone Gary Davy on (02) 6026 7711, or write to RMB 1036, Barnawartha North, Victoria, 3688.*

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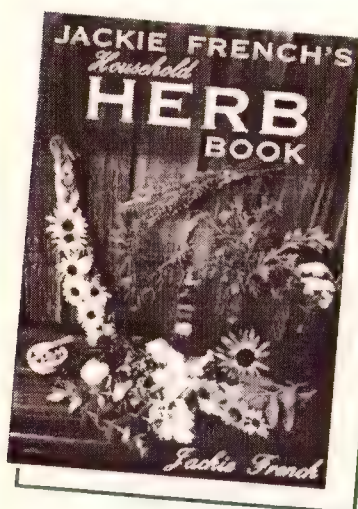


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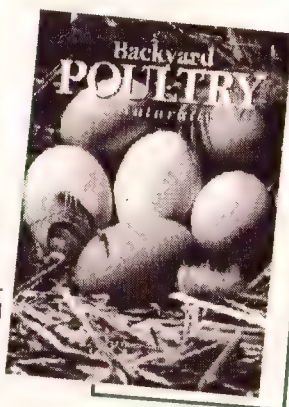
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I BUILT MY HOUSE IN A MONTH

Steven puts his spare time to excellent use by building a mudbrick cottage in 30 days.

by Steven Park
Wattle Glen, Victoria.

YOU don't have to be an engineer to build your own mudbrick studio. By using your intuition and imagination you can create your own shed, bungalow or house in just 30 days. So, if you are prepared to get muddy, I'll tell you how!

I bought 0.2 hectares (half an acre) in Kinglake about five years ago. I was thinking about selling it as I couldn't afford a kit home. It's a scenic block, and even though I have neighbours on both sides, it's as close to Nature as it gets. The block has very few trees, and has a gentle slope.

Who Would Want To

I grew up in the Diamond Valley district and rented in nearby areas such as Eltham and Mill Park. I love the area and have met many interesting people. I was amazed to find out how many people wanted to build, or who had built, their

own mudbrick homes. There are hundreds of books on mudbricks, but most of my learning was by getting in and having a RHG (Red Hot Go). Most of my knowledge and ideas have come from photos and working with owner builders. Getting retrenched from my job gave me the motivation to do it myself.

I started construction in summer when there was plenty of daylight. I completed 90 per cent of it before the winter rains set in. I erected and completed the timber frame in half a day, and used mortice and tenon joints. But I had not yet done the footings.

Foundations

I hand dug the strip footings to a depth of 600 millimetres, then got the concrete poured. I then laid two courses of red bricks and covered these with black PVC, which acted as a damp proof course. The brick courses had to be plumb to lift or (cantilever) the frame on to. I used reinforcement top and bottom in the footings.



Steven's house stands complete.

The Roof

Then I started on the roof. First I placed tongue and groove pine lining onto the rafters. I allowed for some space as the moisture expands the joints. Allow for sufficient overhang when attaching the battens. Next, I fitted the diagonal bracing and then the sisalation. Don't attempt roofing in windy conditions: it's an awkward job, and you will probably need extra hands. I chose secondhand colorbond in heritage red. My roof was very steep (60 degrees). The style is a loft with one side coming down low like an A-frame.

Laying Bricks

Use a cement mixer when you're laying bricks. I used a wheelbarrow — it took twice as long. The mortar was one part brickies' sand to one part graded mudbrick material. Experiment to get the right consistency, but try not to make it too runny. Use profiles to set up your string lines. Buy a string level. After every layer of bricks use a paintbrush to rake the joints smooth, as this saves rendering later on. Use brickies' trench mesh or barbwire every third layer, and attach wall ties to the timber frame every fifth course.

Windows and Doors

I shopped around for a secondhand lead-light door. I sanded it back and painted it in Federation style. Nail the windows and doors to the frame as you go, and use flashing at the bottom of the windows. The most interesting window is at the back of the loft. I ran out of bricks so I decided to use an old round glass dining-room table. I used a flat steel lintel in the top half of the window for the bricks to sit on.

Floors

I selected a brick-paved floor and brushed sand and cement between each layer. The loft has a



Steven converted an old dining table into a feature window.

mezzanine floor with a hand rail. A slow combustion wood heater adds character to the room. Mix up more mortar and patch up any bits where you can see daylight. Do this before you install the furniture.

The Bricks

All bricks vary in size, colour and strength. Select ones that suit your needs. I chose Amcer Mud Bricks. They are in Plenty (Victoria) and have very strong bricks. Their service and availability of bricks and mortar is excellent.

If you are still excited to 'do it yourself' then get cracking. It's a perfect way to build something to live in while you work on your next project. It will be the most rewarding thing you can do.

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Wind turbines at Mrs Seaman's property at Crookwell, NSW.

**The country's largest and first grid-connected wind farm is up and running.
And property owner, Mrs Hazel Seaman, is a big fan.**

by Anne Hall
Castlemaine, Victoria.

AUSTRALIA'S first wind farmer, Mrs Hazel Seaman, is surprised at the opposition to the proposed wind farm in Bridgewater, Victoria. There, local residents believe the turbines would be too noisy. "We are 700 metres from the nearest one. We don't hear noise at all. When you're up close to one you hear a swish-swish from the blades. But they are no inconvenience at all."

Mrs Seaman continues to run sheep and cattle at her property 'Wharekarori' in Crookwell, New South Wales, where she has lived for 44 years. "Sheep farming is not that profitable at the moment. The wind farm has been a help to us. I would definitely promote wind power."

The innovative Australian company, Pacific Power, which developed and now operates the wind farm has made some changes to the property. "They have put in three dams,

made some road improvements, and planted between 80 to 100 trees, mostly natives, just to make things look more natural," she said.

Mrs Seaman's property was chosen after an intensive wind-monitoring programme established by Pacific Power in 1991. The company, with the assistance of the CSIRO, had taken many millions of readings throughout New South Wales with Crookwell showing up as one of the best sites.

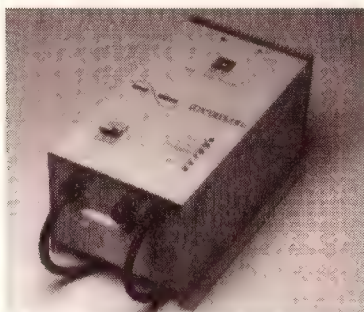
"We always knew it was a windy spot but we didn't realise it was one of the windiest in the State," she said.

Mrs Seaman is now a strong supporter of renewable energy. "We must think of future generations. We must start being more clever and take advantage of our natural resources. Australia is lagging behind the rest of the world when it comes to alternative energy. If you have the opportunity to do something positive you must grab it with both hands."

The nation's biggest and first grid-connected wind

New 1500 Watt Sinewave Inverter

SOLAR Energy Australia have recently entered the growing renewable energy market place, and have just re-released a 1500 watt unit in their range of competitively-priced inverters. The 1500 watt, 24 volt, SEAP-24-1K5 sinewave inverter has a half-hour rating of 1800 watts and a surge rating of 3900 watts, and is designed for medium-sized remote power applications. Its 240 volt, 6.25 amp AC output is available via an internal DIN rail with terminal block



SEA's 24 volt sinewave unit has been reduced to \$1,995.

and it has a peak efficiency of 93 per cent operating from an input voltage range of 21 to 32 volts DC.

Other standard features of the inverter include adjustable auto start and protection against short circuit, current overload and thermal overload. It conforms to AS 3100 wiring standards, is Year 2000 compliant and is 400 mm high by 250 mm wide by 198 mm deep. There is a 48 cm (19 inch) rack version available on request. The unit costs \$1,995, which is a 13 per cent price reduction since it first entered the market.

Solar Energy Australia have the unit in stock and it is covered by a full two year warranty. Contact SEA at 11/24 Stud Road, Bayswater, Victoria, 3153; phone (03) 9720 9399.

farm was opened in August by the New South Wales State Premier, Mr Bob Carr. Since then, according to Mrs Seaman, it has been operating up to expectations.

The wind farm has been guaranteed commercial viability by the role of the national energy services company, Great Southern Energy, which will buy the entire energy output of the wind farm and sell it on to its customers under the EarthSaver brand. Great Southern's participation is essential to the success of the project and has ensured its progress to completion.

The electricity is generated when the wind speed is above only 15 kmh. The plant shuts down — for safety reasons — when wind speeds exceed 74 kmh. The total power output of the eight turbine wind farm is approximately five megawatts. Each turbine measures 45 metres from the ground to the hub with rotor blades of 44 metres in diameter. The blades rotate at a speed of 28 revolutions per minute driving a gear box which is in turn connected to a generator.

The wind farm will be capable of meeting the average electricity demands of at least 3500 households. This will result in a saving of 8000 tonnes of Greenhouse gas emissions each year.

Great Southern's EarthSaver customers make up 25 per cent of all NSW energy customers who have chosen a genuine consumption-based Green power programme. Pacific Power has evolved over the past seven years from being primarily focused on coal energy to developing renewable and environmentally friendly energy sources. These include solar power, hydro and gas-turbine generation, the use of coal-bed methane as a fuel, and of course, wind generation.

The company believes there are many advantages in using renewable energy to provide us with electricity. The most important of these is that the energy resource is not depleted by its use and it does not produce Greenhouse gas emissions when it is converted to electricity.

"If we are to have a sustainable future then the use of renewable energy will be essential to reduce the emissions of Greenhouse gases and to conserve resources," said a spokesperson for the company. "The challenge then is to convert the renewable energy to electricity in a way that is itself environmentally sensitive and economically feasible."

There has been an increasing use of wind turbines throughout the world with the result that their efficiency has increased significantly and the costs have been reduced. Pacific Power is well advanced with plans for similar wind farms in a number of other locations.

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PERMACULTURE IN HINDSIGHT

It's paradise – but we need rain

What quality of life is there if there is no water quality? Bruce finds an ingenious solution to effluent run-off in the bath. Eureka!

by Bruce Hedge
Newham, Victoria.

It never rains but it pours

I've never experienced a flood. I can't imagine the helpless feeling as the water rises through the house. And there isn't a thing you can do to stop it. For all of you who wish the rain would stop, my heart goes out to you.

But, you know, La Nina is fickle. She hasn't been benevolent to us here. Our dam is still only half-full mid-way through October, and if we don't get 200 millimetres in the next month (highly unlikely), we'll be in the poo this summer. These two years of below average rain have given us a totally different view of the role of water in our existence. We built the dam to get us through two years of drought. And it will be okay this year — just. But the quality of the water has deteriorated significantly as the level has dropped. It gets muddier and muddier. We use the dam water for everything except drinking, but my son's tae kwon do outfit doesn't come out whiter-than-white without soaking in Napisan and a final rinse in our precious drinking water.

And that's another thing

These dry months have meant that our roof is not being washed clean. Our slow combustion stove smoke settles over the roof on cold, still nights and light rain and dew washes this gunge straight into the tank. And, for the first time in 20 years, we're finding the drinking water is not so drinkable!

The answer, of course, lies in the permaculture bible. If you buy only one book about permaculture, get a copy of Bill Mollison's *Permaculture - a designer's manual* published by Tagari. Not cheap, but priceless. What we needed was a first water flow diverter to dump that first flush of dirty

roof water before it went into the tank. We now have to decide whether we empty the tank after installing a first water flow diverter, then refill with bought water (which costs around \$250), or filter the existing water. I've looked at various terracotta and ceramic water filtering towers, but I'm not convinced they're the answer for us. Especially at over \$200 each. I'd be interested in feedback.* How fast do they recharge?

Water. It will become possibly the most significant aspect of our life over the next 50 years. Our children's lifetime. Wars will be fought over it. Ecological disasters will happen because of it. And the disposal of contaminated water will be so incredibly important in future years.

I was at the Centre for Education and Research in Environmental Strategies (CERES) project in East Brunswick, Melbourne, the other day, and I saw this beautiful, ecologically sound way of treating the effluent from the paved animal pens at the top of the site. There is a problem that the effluent from the extensive animal enclosure at CERES could contaminate the Merri Creek running through suburban Melbourne. The effluent also has significant value as a fertiliser for the extensive vegetable garden used to provide produce for the on-site café.

The solution Rick Corinaldi has devised is quite ingenious. Effluent washing off the hard paved surface of the animal enclosure is directed into a holding pond, which overflows into a series of recycled old baths. These are placed down the slope so one flows into another, into another, down the slope and eventually into a bottom pond.

Each bath grows an aquatic plant, such as azolla or watercress, which uses the nutrient and leaves each stage clearer, as the water moves down the slope. Each bath has

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two or three plants of comfrey growing next to it and every now and again, as it takes their fancy, the gardeners scoop out a bucket of wonderful, nutrient-rich solution from the baths to fertilise the comfrey.

Leaves from the comfrey are harvested and fed to a huge worm pit. Castings from this pit are used to fertilise the vegetables in a garden which would have to be among the best vegetable gardens in Melbourne. What a great way to recycle old baths! CERES is in Lee Street, East Brunswick. Go and have a squizz if you're ever in Melbourne.

I'm cutting my next winter's wood off our place at the moment. I reckon I'll get away with about eight to ten cubic metres of pine logs cut from our of 0.2 ha (half an acre) plantation this year. Two metres of wattle and gum should give us overnight burning. We have a family of Canadian WWOOFers here at the moment from Cape Breton Island, Nova Scotia. They need about 20 tonnes of wood for an

average winter. There is snow on the ground from mid-November till March. Gosh. They don't have the same awe about our wide open spaces as the Asian and European WWOOFers we've had, but we're waiting for a moonless clear night so I can show them the wonders of a totally different set of southern hemisphere stars. Ed tells me they have a major problem with a lack of bees to pollinate fruit trees and bushes. A predatory mite has wiped out most of the bees on the island over the last ten years. So what do they do? They bring in hives from hundreds of kilometres away. But what happens? A dozen hives get completely destroyed in one night by a marauding black bear or two. We live in paradise here, don't we?

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— Doug Falconer

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Twenty years on an island

Jose and her husband, Don, left the rat race and discovered in middle age self-sufficiency and alternative living on an idyllic tropical island.

by Jose Robinson
Boyne Island, Queensland.

THIS year marks a milestone for us. We have been living an alternate lifestyle for 20 years on a tiny island just off the Queensland coast.

At the beginning, our friends and family shook their heads and predicted, "You'll be back in circulation in a year or so". That didn't happen. Life here has just got better and better. It has been a challenge or rather a series of challenges. We have made many discoveries and we are still discovering. We have learned to manage on less money but have more motivation and initiative. We have found great enjoyment from the simple things of life.

Before we moved to the island we had raised a family of five children. Don operated our own business in Brisbane. Later I opened my own art gallery outside Gladstone, Queensland. We travelled extensively overseas.

The change from having two smart cars, a Cessna aircraft, a large brick home filled with the latest mod cons, plus a pool and acreage, was very great for us. Overnight (virtually) we went back to being Darby and Joan (family grown up and gone their own ways). We bought this new but tiny four-room incomplete cottage on a ten-kilometre long island. We bought an older car which we had to keep on the mainland because there were no roads on the island. We also bought a dinghy. Everything else we sold – even our beautiful antique furniture. These pieces would have been too large for the tiny cottage. So there we were, back to basics.

In 1978 we'd been holidaying on our own cruiser in the Mediterranean for nearly 12 months when Don suffered a very serious accident. As a result he spent a considerable amount of time in a Spanish hospital with his injuries, which included several broken bones, crushed heel bones, and an extremely injured morale. When he was eventually able to move around again – on crutches – we sold our cruiser and

flew back to Oz. Don spent the next 12 months rehabilitating back home. It was then that we made the decision to opt out.

We wanted to do something different and more soul enlightening than going back into business. It was a big turning point in our lives. Don was still not completely back to normal, but this new venture was to prove a real tonic for him. One specialist warned that within five years he could be in a wheelchair from arthritis caused by his broken bones. However walking regularly on the soft sand of the island proved excellent therapy and exercise for him. It's not the first time a determined spirit has proven the doctors wrong.

After paying all the hospital bills, we consolidated all our financial resources into the cottage and the freehold land of the island. We had been around boats all our married life, so access to the island was not a problem for us. We were prepared to teach ourselves new skills. As a child, I was brought up in the city, but in a do-it-yourself lifestyle due to impoverished circumstances.

There we were, a middle-aged couple, starting again. Although financially secure, it was quite a culture shock to stop operating my own art gallery and teaching the arts, and becoming a Robinson Crusoe. However we enjoyed every minute of the challenge.

Every day was full of adventures and experiments on how best to do things. Initially there was no time for my art career, as I threw myself into getting back to Nature. Nobody else lived on the island, although there was, and still is, a handful of holiday houses on the island, which are used as weekends.

We really did feel like Robinson Crusoes, except we didn't need to be rescued. Being alone on the island we would run free of clothes in the tropical sun and revel in being free spirited. We would fish and swim daily. We spent a lot of time finishing the house and making it comfortable. There were sheds to erect, land to clear, gardens to mark out, machinery to be housed, chook houses to build.

It made us feel like teenagers again. We bought an

"We really did feel like Robinson Crusoes, except we didn't need to be rescued."



Josie and Don repair their sun shelter at their island home.

old caravan to accommodate the family when they came to visit. They loved coming for weekends and were roped in to help us with the many jobs that we needed to do to make life comfortable. We still wanted to enjoy a few of the creature comforts we'd been accustomed to.

Our youngest son, Warwick, had a mate who was a qualified electrician, so he helped with the wiring of the house. Another mate was a plumber, so his finesse was also greatly appreciated. Our son-in-law helped out with our first front patio extension. We shared lots of fun and laughter – most of the time. On reflection, there would be nothing we'd want to change, given the time over again.

Some memories fade, so I've had to consult our many project albums to remind me of these earlier happenings. These albums are a wonderful set of history books for us when we are in a nostalgic mood and wish to reflect on those early years.

Home power

We began our energy system with a small generator for 240 volt power, then soon purchased a larger Southern Cross diesel monster which I immediately christened 'the General'. As well, the house was wired for 12 volts so we didn't always need that very noisy 'General'. Then it wasn't long before we purchased our first solar panel, mainly just to see what it could do. At first Don was a bit skeptical about the staying power of solar. Also nobody knew much about the subject of solar. There were no books readily available on it, and we floundered around in the dark (literally) at first. But as we taught ourselves more on solar energy, we added a couple more solar panels to the system. Over the 20 years, we've built up to 18 solar panels, 7 x 40 watts and 11 x 80 watts, 1000 amphotours of deep cycle batteries, a 1500 watt inverter and a battery protector for 12 volt photovoltaic systems and a few other bits and pieces. Our home operates these days solely on the wind and the sun.

In the first year we constructed a homemade solar hot-water system on the roof. That system still works well today. Somewhere along the line, we added a 200 watt wind generator as a back up. Initially we installed it too close to obstructions such as the house and trees, and it didn't produce much power. However, we relocated the tower just behind the sand dunes, where the trade winds blow almost all year. From then on the wind generator came into its own.

The first slow combustion stove we bought was a beauty. It was 38 years of age, but we had it reconditioned. It was a Scottish Wellstood brand. I christened it McTaggart, and it immediately became an intimate part of the family. In the last couple of years,

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McTaggart has been replaced with a much younger Everhot DeLuxe which still hasn't been christened.

Growing food

We learnt to grow vegetables by trial and error in the first years. How can you grow good vegies on an island consisting of sand with no running water? I learned the hard way. Years of frustrations and failures due to no water-holding capacity — drought years — no nutrients in the sand. Failures and more failures.

At last I have triumphed. Although always being an organic gardener, I still thought in the early days that crops should grow if you put them in the ground and watered them. How wrong can one be? Somewhere along the line a bubble burst in my dulled brain, and I hit on the idea of above ground gardening and container gardening. I was on a roll. From then on I had the problem solved. I begged, borrowed and acquired from a painter friend and the mainland tip, dozens of 20 litre drums, plus lots of old washing machine bowls. I also obtained as many large pieces of plastic that I could lay my hands on. As well, lots of large soft drink plastic bottles with the tops cut off. I filled the bottles with water and had a wick hanging down to the ground when the bottles were half buried in the garden. The capillary action waters the roots of plants slowly without any waste.

I also learned how to compost properly, rather than

just throw a few scraps into a bin with sand and expect it to work. No longer did I try to grow in the impoverished sand. I now made many garden beds above ground with a perimeter of about 15 drums. These I filled with compost, then packed compost inside the circle of drums over a sheet of plastic with some drain holes. Each drum supported one plant, then the inside circle was around 1.5 metres in diameter, so that sustained quite a few plants. I made many of these circles until my compost couldn't keep up with the demand, and in went the vegie seedlings and herbs. Success at last! We now had seafood in abundance and lots of fruits and vegetables for a balanced diet, without living at the supermarket on the mainland. Our excess fruit and vegetables are solar dried in three driers which we constructed from scrap timber.

In recent years we both did a permaculture design course which increased our knowledge considerably. Shortly after we learnt about bio-dynamics and we became even more enthusiastic as our knowledge expanded. We've now constructed a 2.7 metre (9 foot) high energy tower (cosmic tower) and believe it is working well. (The tower acts as an aerial for cosmic waves (extra low frequency radiation) which is detected about 2.4 metres (8 feet) from the ground. Towers need to be made from paramagnetic material. Dowsing provides a suitable site. We found this information in Rudolph Steiner's books.

Water

Our rainwater holding capacity began with just one meagre 4400 litre galvanised tank. We now have several large tanks of both poly plastic and fibreglass with a total capacity of 63,500 litres. Last year, despite the skeptics shaking their heads, we constructed a small lined dam to provide extra water for the gardens. We've been in a drought situation on and off for the past ten years, while the El Nino pattern dominated our weather. Hopefully, if we can believe the experts, that pattern is about to change.

To pump water from the dam, up a 50 metre slope to the gardens, we installed a small pump, a maximiser, and one extra solar panel. This works well, provided the dam has a

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reasonable quantity of water in it. (No battery is required). Water is still at a premium here and we never waste a drop. Our grey water from the house is filtered and directed into two systems. It is then hosed onto the gardens using two small marine bilge pumps with a 12 volt switch.

Unfortunately our 40 year old Southern Cross windmill, which we purchased in our first year, has been idle in recent times. The underground soak, which had good pure water, has gone brackish due to the drought. However when we get better rainfalls we can put the windmill to good use again.

During these past busy 20 years, we still found the time to build a 12 metre sailing yacht and later a 12 metre houseboat. Three years ago Don finished building a light-wing aircraft, and is currently building a second light-wing plane. He uses the hard sand at low tide as an airstrip.

In the last three years, I've won first prize every year in the organic section of the Gladstone gardening competition, so I must be doing something right.

I make my soil from grass clippings, animal manure, seaweed, tree leaf litter, composted scraps such as citrus peel or anything which the hens don't eat, and anything else suitable. I do not buy any fertiliser. I simply use seaweed and liquid fish scraps. To make the fish fertiliser, I have two large vats. One working, and the other ready to use. As we live on more than 50 per cent seafood, there is always plenty of residue. It takes just two weeks to break down the raw fish frames in water in the covered vats. (Well away from the



Josie, helped by husband Don, uses hay to mulch her prize-winning garden.

house). At a ratio of one to ten parts, this supplies all the nutrients my gardens require.

For the past two years I've been reforesting a small area of dead forest. I've planted out and nurtured locally occurring seedlings. The decimated area has been due both to drought and bushfires. I'm happy to say this area is now looking green and healthy.

Our honey production, both for our own use and barter for friends, has been a fluctuating thing, depending on rainfall capacity. Last year we had bumper quantities of honey, despite the drought, yet this year the bees appear to be starving. However with the promise of good summer rains, the bush trees should be soon producing nectar again for the bees and that situation will be remedied.

The thermosiphon system of heating our pool, which I wrote

about back in *Earth Garden* no. 91, is still operating very effectively.

My soap making skills, which in 1979 I was only experimenting with, have long since reached top quality, and I haven't bought soap for 20 years. We belong to a LETS group (Local Exchange and Trading System) and regularly have produce or skills to exchange.

On looking back over these past full and eventful years, I doubt if there is anything we would want to change. We enjoy excellent health, probably due to our alternate lifestyle. The years fly past so quickly when you are busy and enjoying life to the fullest, so why would we want to change anything?

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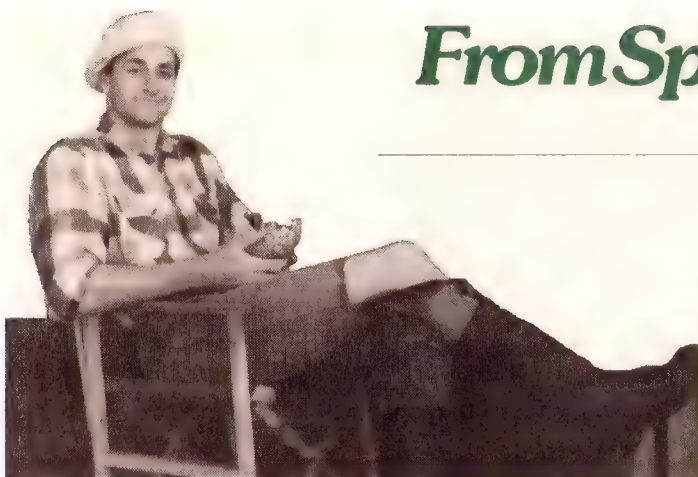
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From Spade To Blade

Gary Thomas's Garden Recipes



Gary Thomas gives the A to Z of gourmet vegetarian recipes to try on your barbecue this summer.

Growing Basil

By the time you have read this I will have made Trudi very angry.

On purpose. Angry on purpose. Angry on purpose as I do once every year, every spring. I begin by niggling at her over breakfast. Something to do with the effects of coffee on the nervous system perhaps. I then leave the table and walk outside without explanation, making no attempt to clean up my morning's mess. I follow on by making another mess, somewhere prominent. I might dig a hole right outside her favourite window, for example, and leave tools and raw soil scattered while I go on and do something completely different, maybe with a circular saw. I show no recognition of the aggravation I am causing. At lunchtime I forget to take my boots off and scatter dirt throughout the kitchen. I eat a sandwich with my mouth open, chewing noisily.

Should Trudi make an opinion on some topic, I gently deride and devalue it. I then completely disappear for a couple of hours. By the time I get back she is steaming, man, I mean steaming. She starts yelling at me, she's telling it like it really is, like I really am, I take it all, I don't say a word back, I just steer her towards the prepared bed, place an opened jar of basil seeds in her hands and walk away.

We read some years ago that basil must be planted with a curse, that the seeds should be flung in anger. And it works! We never had good basil crops and now we always have good basil crops, the only exception being the year where we just played at being angry, instead of the real thing. I don't mind admitting all this in these pages because I know there are plenty of other people out there who use the same planting method. It works, okay, the question is why does it work.

I wonder myself if it has something to do with the extreme emotionalism of the plant itself. From the peppery passion of those pungent leaves to the silky smoothness of the colour green; the sublime combination of aroma, colour and taste ensures defence and devotion. Want proof? Just quiz somebody about their pesto recipe.

Barbecue

We love our barbecues in Australia and why shouldn't we? The barbecue expresses the bounty, good fortune and egalitarianism we pride ourselves on, right or wrong.

There was a time, though, when I considered an invitation to a barbecue as submission to a bad food option. Since then I have learnt many interesting and delicious ways to eat vego from the outdoor grill and during the recent gas shortage in Victoria they all got a run. It doesn't really matter if you use a solid metal hotplate or a slatted flame grill. Given a choice I like a combination of both.

The crucial element of the barbecue (apart from the notes on rosemary discussed further on) is the heat.

Always leave plenty of time to adjust the temperature of the steel before beginning to cook. This is absolutely vital if you are using a wood-powered number. Get that hot coal bed ticking over just right, have those small extra pieces of fuel ready at hand, ignore the cries from the peanut gallery demanding an immediate start, focus such that even warring dogs cannot distract, complete your process, lightly oil the metal and away you go.

Alliums

I grow lots of different types of onion and garlics and I've tried them all on the barbecue. Plucked, washed and placed whole are green elephant garlic, leeks, spring onions,

The idea is to get angry and fling the basil seeds... NOT a right hook!



chives and garlic shoots. This list is in order of cooking time. Allow a good 20 minutes of steady heat for elephant garlic, while chives need barely a minute to warm through. Brown onions should be sliced or pre-steamed. Red and white salad onions are delicious cut into quarters and grilled on all sides.

Apple

Cut into wedges or cored and sliced into thick rings, apples make a lovely sweet addition to the veggie barbecue. Good eaten with cauliflower or spread with a well cooked onion over a piece of bread and stuff instead of using tomato sauce. Really good as something young kids can run around the backyard with. Pears can be treated in the same way. Give them ten minutes over moderate heat.

Asparagus

There is no need to do anything to asparagus except cook it and eat it. You can shorten the cooking time by standing the base in boiling water for a minute or by veggie peeling the tougher outer but I prefer to place asparagus on the barbecue with their bottoms to the middle so that the stalks receive a greater heat than the spears. Rotate evenly and try to hide a piece away for a sandwich tomorrow.

Beans

Fresh green stringless beans are right up there on my list of favourite things to barbecue. I usually add them about halfway through the cooking cycle so they are really wilted and bendy around the other food on my plate. A little sesame oil coated on the beans before cooking will impart a smoky flavour. Leftover barbecued beans make a wonderful addition to tomorrow's tossed salad.

Alternatively, lightly steam half a kilogram of beans and mince thoroughly. Combine with around two cups of fefafel powder. If the mixture seems at first too wet, rest for half an hour before shaping them into patties. This allows the chickpea flour to absorb the extra moisture. Green beans, of course, are just a simple substitute for the more traditional broad bean in falafel. You can also use soaked and cooked chickpeas to make the burger.

Beetroot

Beetroot leaves can be washed and warmed through on a cooler side of the grill. Like radicchio lettuce and endive, we are talking about a minute or less, just enough to wilt and soften the leaves. Smaller beetroot can be sliced into three or four coins and fried for as little as you like. Pre-steaming is also an option, if slightly messier. Steam or boil the beetroot until just tender. Sit them in a sink of cold water. This will release the skin and allow you to slip it off easily with your fingers. Cut into thick wedges and coat with crushed sesame seeds. Fry briefly over a moderate heat.

Broccoli

Broccoli gets the same treatment as cauliflower. If you are using the many-headed varieties treat them as you would for an asparagus spear. If you have the single tight-headed sort, think of it as a dead brain which needs to be sectioned. Cut a quarter out of the whole then lay a flat side down. Slice sections through between half and one centimetre thick. Place on a well oiled section of the barbecue.

Like a lot of people around this house, I'm not raving about the flavour of the broccoli or cauliflower. What really appeals to me about the brassicas is the texture. I love the way the little broccoli florets go all brown and crispy, kind of how I remember crunchy fried chicken skin to be and when I eat the stalk sections I reckon my teeth are giving me an extra year each time. No other single food experience makes me feel quite so herbivorous. They require a medium cooking time.

Capsicum

Cut pepper into three or four sections along the natural growing lines, slicing it from top to bottom. Placing the skin side down, use a flexi filleting knife to trim off the bitter inner membrane to reveal the vibrant-coloured flesh beneath. Grill these pieces as is or lightly brush them first with a good olive oil. If you place the skin side down first on the barbie and turn after six or seven minutes it gives you the opportunity to lift off the outer skin as the inner flesh cooks. Not necessary, just an optional extra for the fidgety cook.

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Corn

Everyone knows about corn on the barbecue and how good it tastes and this year I'm going to have the best damn crop in the district; been preparing the bed for six months now and I'll be sowing as soon as I get this pesky article out of the way. I made the mistake recently of purchasing a new hybrid strain of corn from one of the big supermarket chains. The corn was supposed to be "super sweet" and it was.

In fact, it was so sweet I was reminded of the early days of saccharine! The complete artificiality of the taste destroyed any enjoyment I might otherwise have got. Never again, I say, never again. (Personally, I like to cook the corn from raw still in the husk, peel it at the table and snap off pieces to pass around. This particularly impresses young friends who look at me as though at a circus strongman. A good technique for Christmas day).

I start every barbecue with a little ritual!

I begin with six little rituals!



Mushrooms

I love my mushrooms whole — straight off the barbecue. It's a bit difficult to catch them in the fields during barbecue season so they tend to arrive more via the marketplace. Still, I go for large mushrooms and just trim the stems enough so that the fungus sit flat upon the grill.

I always put them right side up to start. That way when I turn them after five or six minutes they are just starting to soften and release juices. Subsequently, all the juice gets caught inside the mushroom cup and makes that wonderful slippery, gloopy tenderness possible.

Some people put little cubes of cheese inside the mushroom caps to melt but I'm not one of those myself. I don't need a day by day reminder of global warming.

Eggplant

There are some people who don't think it necessary to salt eggplant before cooking. I've tried it myself on

occasion but never with any real success. I find the bitterness blisters the tip of my tongue even if the eggplant is just one of a number of ingredients in a casserole or something. For the barbecue, slice the eggplant into 'steaks' either vertically or horizontally and salt and rinse as usual. Blend two teaspoons of fresh oregano with two tablespoons of mint, a very ripe tomato and half a cup of olive oil. Brush generously on the rinsed and dried eggplant slices. Brown evenly.

Pesto

Pesto is a very versatile barbecue additive. Place a little oil on the grill and then some polenta squares. Leave without turning for about seven to ten minutes. Slide your barbiemate carefully under each piece to flip it. We wouldn't like to lose any of that yummy crunchy topping, now would we? Place a thin spread of pesto atop each of the turned pieces of polenta sometime during the next five minutes of cooking time. The pesto slowly warms into the polenta. We have made a new friend.

Sometimes I do a quick grill fry of light, soft, fast cooking vegetables, you know, types of lettuce, choys, maybe some julienned zucchini, chives. Cook them probably for 90 seconds tops and I daresay that is too long. Anyway, I just have a tablespoon of pesto ready to go beside me. I toss it into the vegies once they are warmed up and go like the clappers with the tongs for another 30 seconds, just so the pesto is spread lightly amongst the food without charring the grill top. This is particularly tasty when placed on a plate with some thin sliced potato and a wedge of tomato or two.

Pineapple

Thinly cut pineapples sections are another favourite among children and a lovely bridge between the broccoli and the bread. I think the most important thing to remember is to place the pineapple pieces in a moderate position on your

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barbecue and trickle water over them as they cook. This stops them from drying out and then, when you are ready, move the pieces to the hottest part of the grill and sear for a minute or so on each side.

Potato

I suppose my bottom line with cooking potatoes on the barbecue is that I'm still to find a variety of potato I don't like or a method of cooking it. As a child our barbecues often came with thinly-sliced sections of potato, tossed raw upon the grill and eaten with Mum's homemade tomato sauce. The only problem with this is the amount of room it can take up on your barbecue if you like your spuds as much as I do. Instead, I pre-steam the potatoes as much as a day in advance and cut them into thick wedge shapes. These I fry over the length of the cooking time, rotating to ensure all sides develop a lovely crunchy skin. A tablespoon of your best pesto folded through half a cup of good mayonnaise and lightly tossed with cooked wedges makes a very nice lunch with a glass of red wine.

If you are going to cook new potatoes when they are raw, try to rinse them in cold water after slicing and pat dry before placing on a hotplate.

Another way with potatoes is to finely grate a handful of spuds, rinse, pat dry and toss with one-fifth the quantity of plain flour. Season and add enough milk to firm into hamburger shape and more than a centimetre thick.

These are real potato cakes and excellent with some homemade tomato sauce. You can add anything you like — some sesame seeds or some fresh chopped sage, parsley,

rosemary, thyme. Carrot strips are good too. Cook over a moderate to strong heat on a well oiled hotplate (a flame grill won't do) until golden brown on both sides. Like most vegie-based burgers, don't flip too soon, allow time for the binding agent to firm the pattie. With these potato cakes, think hash brown, think roesti. I think my favourite barbecue spud is the Desirée.

Ricecake

Like polenta, cooking rice cakes on the barbecue gives us a grain alternative to bread. Take one cup of cooked rice and combine with a quarter cup cooked and mashed green peas, two tablespoons of a cooked tomato sauce and enough rice flour to bind. Shape into small cakes. Sometimes I will coat these in coarse cornmeal as well for hotplate-based grilling.

Another way is to precook a cup of rice with one-third of a cup of wild rice. When cool, take half and blend it to a pulp. This creates one very fine binding agent. Combine thoroughly with the remainder of the cooked rice. Season lightly, maybe with some sea salt or a sprinkle of sesame seeds or a splash of balsamic vinegar. Shape into small cakes about five centimetres across and one to two centime-

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tres deep. Cook until crispy. This will make enough ricecakes to feed four adults with vegetables and other additions.

Rosemary

I wouldn't particularly call myself a superstitious man, more struggling to cup the universal threads of existence. However, when it comes to the barbecue I feel compelled to begin each one with a little ritual. When many are to be fed from the same meal, my ritual becomes commensurately more intense and necessary. It involves rosemary. While the barbecue fire is burning down I collect a couple of dozen sprigs of fresh rosemary and bundle it up close to where the action will take place.

The barbecue begins when I cover the grill with sprigs and observe what happens. I now know the relative heat of all sections of the hotplate. A lovely new aroma joins the wood smoke in our nostrils. The gods of outdoor cooking are appeased once again. The sprigs of rosemary look beautiful as they sear. I stack them up around the edges of my grill. They look beautiful there as well. As I cook the other food I reach occasionally for that extra sprig to keep my good luck flying; to keep my good luck frying.

I recently ran a barbecue with a hearty baker fellow of my acquaintance. He scoffed at my ritual, muscled me out of the way and threw the food onto the barbecue while I was still choosing which sprigs of rosemary I wanted to sacrifice. He then stood perplexed as half of the gas rings available sputtered and failed, again and again and again.

After an hour or so of minor drama we got them working, for no explicable reason. We've had another barbecue together since that day. The first thing he asked for was some rosemary. I think he called it "that stuff of yours". I find rosemary bushes wherever I go, which is very handy, and also, auspicious. I believe.

Tofu

Marinated tofu is a good and easy barbecue food. Try sitting it overnight in a vessel containing fresh lime juice, peanut oil and a good pinch of your favourite curry powder

if you don't believe me. Tofu that has been sitting in water should be wrapped inside a teatowel, placed *underneath* a heavy board and pressed for half an hour before cutting. This will improve the take up of flavour as it sits overnight.

Another way that doesn't involve pressing or making in advance is to take a block of tofu (about 250 grams) and crumble or mince. Combine with two cups of good quality breadcrumbs, I use sourdough, and three generous tablespoons of lemon grass sauce (see EG 93) but any fine seasoning or wet curry paste will do). Mix well. Place a good spoonful in the palm of your non-writing hand and use your other hand to roll it backwards from your fingers much as if you are patting a young kitten. This will make nice little sausage shapes. Barbecue moderately on all sides; a free boot of elephant garlic to anyone failing to make this method work for them.

Tomato

The 'kitten curling' technique works for other types of sausages too. Tom had a mate home from school recently who only knew a barbecue as a butcher's sausage with sauce in bread. I saw the look on his face as he perused my array of vegie options before heading out to a play on the trampoline.

There was some leftover cooked spaghetti in the fridge. I finely minced it with a soft tomato and a little parmesan cheese and rolled it up into half a dozen small sausage shapes. That boy enjoyed the sausages and ate a couple of the other foods on offer. It pleased me to assist him in his journey from the known to the unknown. It also pleased me to confirm the notion that necessity is the mother of invention. Fresh garden tomatoes are very tasty halved and barbecued. A pinch of dried Italian herbs and a drop of olive oil on each cut half can make a pleasant addition.

Zucchini

Baby Romanesco zucchini, still with flower, fresh from the garden, sizzled whole over a flame grill until soft and juicy, squashed, then splashed, with balsamic vinegar, mmmmmmm.

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Jabiluka Campaign Moves From Kakadu To Cities

Throughout 1998 *Earth Garden* has supported and recorded the progress of the blockade of the proposed Jabiluka uranium mine in the Kakadu World Heritage Area.

The following update records the shift in emphasis from direct action in Kakadu to renewed efforts in cities and towns around Australia, and overseas.

End of blockade

The Jabiluka Blockade ended on 6 October with the onset of the Wet season in the Top End. This had always been the plan for the blockade, because mine construction work is unlikely to continue during the Wet, and camp conditions would have become extremely uncomfortable. So the Blockade has achieved one of its biggest aims: to continue throughout 1998 to the Wet Season, and to make the proposed Jabiluka uranium mine a national environmental issue. Meanwhile, the campaign continues unabated.

Eighteen months ago few people knew what Jabiluka was. Today everyone knows that it's a proposed uranium mine on Aboriginal-owned land in the middle of the Kakadu World Heritage Area," Jabiluka Alliance Election Campaigner, Dr James Warden, told *Earth Garden* in October.

Election campaign

The focus of the campaign to stop Jabiluka switched from the mine site to regional and urban centres during the federal election campaign. The Coalition said they would definitely proceed with the mine, and the ALP said they would probably stop it. The ALP's commitment was certainly not watertight, but their promises sounded better than those of the Coalition's. In the early days of the election campaign there was significant coverage of the Jabiluka issue as people mounted impromptu demonstrations at radio stations and public events where Mr Howard appeared. Outside the Melbourne radio station, 3AW, Kim Beazley addressed demonstrators and told them that Jabiluka was the "wrong mineral in the wrong place at the wrong time". Of course, with the Coalition election victory we will never know if the ALP were prepared to stop the mine.

Shares in uranium producer Energy Resources of Australia Ltd jumped 15.9 per cent, to A\$2.40 the day after the election, after relief that the ALP hadn't won.

Trespass charges

The senior traditional owner of the Jabiluka site, Ms Yvonne Margarula, labelled a court "mad" on 1 September, after she'd been found guilty of trespassing on her own land.

"The white man's laws are calling me a criminal, but I've got a right to stand up for my people," she said.

Ms Jayne Weepers, Co-ordinator of the Environment Centre NT, is contesting her trespass charge. Her barrister has mounted a strong defence and she expects to call expert overseas witnesses to give evidence by video link-up on her behalf. *Earth Garden* editor, Alan T Gray, also pleaded 'not

guilty' to trespass and despite a self-defence that the magistrate called "brilliant", he was found guilty and fined \$500, as was his co-accused, the Campaign Director of The Wilderness Society, Mr Alec Marr (see EG 105, page 70). Ms Weepers's case is continuing.

The future

ERA, which owns the Ranger uranium mine next to the Jabiluka site, is still negotiating final approval for the disposal of its Jabiluka mine tailings. The campaign to stop Jabiluka is now focussing on public support in cities and regions around Australia. In late October, the World Heritage Bureau sent an inspection team to report on the potential threats to Kakadu. This was the first time a delegation had been sent to Australia to investigate World Heritage management problems.

"If Kakadu gets listed by the Bureau as a 'property in danger' it could put unprecedented international pressure on the government not to proceed with the mine," said Ms Weepers. When the Yellowstone National Park was listed 'in danger' in 1995 the US Government immediately halted mining in the area: such is the stigma of an 'in danger' listing.

Alec Marr says that the team's visit to Kakadu is a major no-confidence vote in the Federal Government, which is well-aware that an 'in danger' listing could turn international tourists away from Kakadu in droves.

"Kakadu is the goose that lays the golden egg and Howard is halfway through garrotting it," he says.

Peter Hitchcock is an environmental consultant and former Director of the Wet Tropics Management Authority, and has a lot of experience in dealing with World Heritage issues. A coalition of 14 Australian environment groups has hired him to present a submission to the World Heritage team. His message is simple: "The wetlands are the beating heart of the Kakadu ecosystem, and the existing Ranger mine has released contaminated water into the surrounding creek system 91 times in its 20 years of operation. We will let these facts speak for themselves".

Legal challenges by the traditional owners, the Mirrar people, continue in various courts, and the stage is set for the campaign to build urban and international momentum.

• *To help stop Jabiluka, contact the Jabiluka Alliance through the Wilderness Society, Friends Of the Earth or ACF office in your State capital or by writing to, or phoning, the Environment Centre NT at 24 Cavanagh Street, Darwin, 0800, NT; phone (08) 8981 1984.*

World Green Power Going Into Orbit

In September 1998 *Earth Garden* editor, Alan T Gray, was lucky enough to be invited to attend the World Renewable Energy Congress in Florence, Italy. For one week, 1000 of the world's leading scientists, researchers, promoters and manufacturers, from 150 countries ranging from Afghanistan to Zimbabwe, gathered to share the latest developments and directions in wind power, solar, micro-hydro and modern biomass energy. Here Alan summarises some of the 650 papers presented at the conference.

by Alan T Gray
Trentham, Victoria.

THE World Renewable Energy Congress opened with several fascinating speeches by people who had 'High-Powered' and 'Busy' stamped all over them. A bit intimidating really, but then it was almost surreal that the Director of the Environment Department of the World Bank, Dr Bob Watson, was getting cross-examined by the head of the All India Women's Conference. How often do such people exchange direct views? And when do people from a backwater like Australia get to see and hear it?

In fact, Dr Watson proved to be a very impressive speaker. He is the former head of the Intergovernmental Panel on Climate Change (IPCC) of the world's leading 3000 scientists, which produced the Kyoto Climate Change conference last December. He has also been a consultant to the White House and to NASA, and his forthright statements — straight from the horse's mouth — really cut through the arguments of the fossil fuel lobby that climate change is not caused by humans.

Often in Australia last year I heard PR people for the oil, coal, and automotive industries saying that climate change was just the theory of a few scientists, and there was no proof. So it was refreshing to hear independent, straightforward statements. For instance, Dr Watson said:

"There is absolutely no question that unprecedented changes in the Earth's temperature have come from energy use and deforestation. Human activities are the primary cause of changes in the Earth's climate. This was the conclusion of the IPCC's 3000 scientists 18 months ago."

Bit hard for a PR executive to argue with such direct statements. Dr Watson went on to argue that the Greenhouse gas problems have been caused by the richest nations, yet it is the poorest nations that will be expected to bear the brunt of the solutions.

In the world's pre-Industrial Age the level of carbon dioxide in the atmosphere is estimated to have been 280 parts per million. We currently have a level of 360 parts per

million, and the European Union believes the world can bear an upper limit of 550 parts per million. The Kyoto Declaration has set a five per cent cut by 2008 to 2012, based on 1990 levels.

Dr Watson is not confident that the Kyoto Declaration will be ratified, because the EU and Japan will not unless the US ratifies it first — and this is unlikely because of US Senate opposition.

So how do we generate half the world's energy by 2050 from renewable sources? This, Dr Watson claims, is what the World Bank is considering. Another blunt statement coming up . . . "In my opinion, solar, wind, micro-hydro and modern biomass are the solution." Dr Watson was careful to rule out largescale hydro, such as have destroyed Tasmanian river systems, saying: "The loss of land and biodiversity in largescale hydro makes this form of energy unacceptable". By now I am dizzy from such blunt, unambiguous statements, having arrived in Florence straight from the Australian federal election campaign and its network of delicate fantasies proffered by politicians of both the old parties.

"Rural, off-grid renewable energy systems are already economically viable, but now we need to increase their uptake," he says, my head spinning, as I remind myself that this is a World Bank head-honcho speaking, and not some alternative energy agitator from rural Australia.

Dr Watson discusses the hidden cost of fossil fuel use: "The annual morbidity and mortality cost of fossil fuel use in China — burning coal — is US\$30 billion, and rising to US\$100 billion within ten years, mainly from people ingesting airborne particles 2.5 microns and smaller".

He finishes on a positive note. Companies such as Shell and BP are moving away from being just oil companies, into being energy companies. BP Solar have had an impressive long-term commitment to solar, and Shell are now investing in renewable energy. Japanese car makers are selling hybrid and electric cars, and there are 13 companies in five countries interested in establishing a global carbon credits market, based on a carbon cost of US\$15 to \$30 per tonne. And then he was out the door.

World Solar Programme

Dr Boris Berkowski is the head of UNESCO's World Solar Programme, and he explains that two billion people worldwide are not connected to electricity grids. His Programme aims to finance mass photovoltaic power schemes — usually in poor rural areas. For instance, from his US\$400 million budget, 18 projects have so far been completed. Italy has provided US\$10.5 million to a scheme in Zimbabwe providing solar power to 250 rural hospitals and schools. In Zanzibar, the World Solar Programme has built a solar village. In Niger there is now a solar-powered public building, and on the Galapagos Islands, there is an extensive solar project underway.

Dr Berkowski told of an old man in Zanzibar, off the African coast, who hobbled up to watch the switch being thrown for the new solar village. When the first light bulb was lit, he raised his hands to the sky and exclaimed: "Now I can die. I have seen man make light."

No nukes for Italy

Dr Ugo Farinelli says the nuclear debate is dead and buried in Italy. Ten years ago there was a big debate but not today, purely because of economics. "A nuclear power programme would cost six times the cost per kilowatt-hour of a natural gas plant. It is too hard to raise the money for a nuclear power programme on a 30 year payback period," he says. Dr Farinelli says that Italy has about 65 years of reserves of natural gas without finding new deposits.

The Italian plan is to double the use of renewable energy from 1996 to 2010 from 7.2 per cent of national energy sources to 14.4 per cent. This makes Australia's extra 2 per cent seem pretty pathetic. A sizeable 700 megawatts of wind power have been approved and should come on line on the next two years.

US perspectives

It's a little beyond me why Dr Bob San Martin — an Executive Director in the US Department of Energy — was invited to be one of the opening speakers. He spends a full eight minutes of his talk congratulating his colleagues and himself on the exciting tasks they've been given in the past ten years, and seems to love impressing us with his list of "very exciting jobs". This is a massive contrast to the humble, impressive, factual presentations by delegates from Bangladesh, India, Morocco, and Japan.

Energy efficiency is the key goal of US energy plans — renewable energy comes a long way down the list. In 1997 the US had 50 megawatts of photovoltaic power and 1750 megawatts of wind power, but Dr San Martin was quite careful to point out that 140 million tonnes of carbon dioxide are "avoided" in the USA each year by using nuclear power. He did make one fascinating, unscripted statement however, in reply to a question from an Indian delegate: "

It will be beyond 2010 before a new nuclear power plant will be constructed in the US." This is a wonderful vindication — straight from the horse's mouth — of some of

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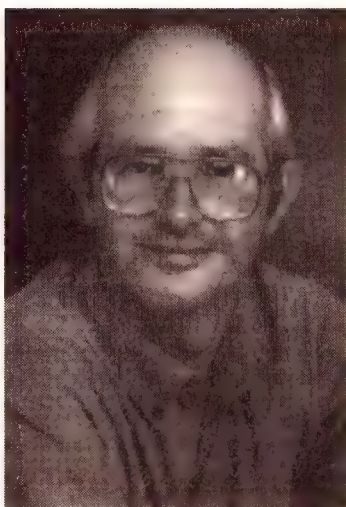
India A World Leader

Mr Kamanarathan, the Secretary of the Indian Department of Non-Conventional Energy Sources, says that wind power is the most competitive and commercially-viable renewable energy form for India in the near future but that long term, modern biomass and solar will take over. At the moment renewable energy provides two per cent of the world's energy, and by 2020 he calculates that this figure will rise to five per cent. In India there are 80,000 villages needing electrification, and there are about 75 million homes — about 400 million people — without electricity. There are about 980 megawatts of installed wind energy in India, and a 140 megawatt solar power project is in the final design stage. There are 500,000 photovoltaic power systems in India, totalling 39 megawatts, providing light and power to 260,000 homes. There are 450,000 square metres of solar hot water collectors installed in the country, and the annual production of photovoltaic modules has risen from 20 megawatts in 1992 to 800 megawatts in 1998, with US\$500,000,000 annual turnover among 21 manufacturers.

Throughout India there are many family-sized biogas plants making methane, and these provide a wonderful cooking fuel alternative to wood or cow manure: the average woman cooking with dried cow pats inhales the smoke-equivalent of 400 cigarettes a day.

India currently generates 1300 megawatts from renewable energy sources, and aims to increase this to 3000 megawatts by 2005, and then to 24,000 megawatts by 2012. The country also aims to electrify 18,000 villages, and wants to make solar hot water compulsory in new buildings.

Another aim is to improve the standards of photovoltaics manufacturing (India is the world's third



Wind energy advocate, Paul Gipe, was honoured as a 'pioneer' at the Congress. His book, *Wind Power For Home And Business*, is available from 'The Good Life' Book Club. Phone (03) 5424 1814 for details.

largest manufacturer of silicon solar cells), and promote the use of a new three-wheeler electric car which is on sale in Nepal.

Wind Energy In Europe

Dr Ian Mays is the President of the European Wind Energy Association and Managing Director of the British firm, Renewable Energy Systems Ltd. His fascinating presentation showed the massive potential being fulfilled by the burgeoning wind energy industry. In Europe 5,039 megawatts of electricity are now being generated by wind farms, and the world total is around 12,000 megawatts. The economics of largescale wind power are exciting: in 1981 wind power cost about 55 cents per kilowatthour to produce in grid-connected wind farms, and today it has dropped to around six cents per kilowatthour. The cost keeps tumbling (there's been a 25 per cent drop in the UK in just the past two years), partly because of economies of scale in manufacturing: some companies are now building turbines that are 1.5 megawatts each.

The most compelling figures presented by Dr Mays from EWEA research showed that a new wind power plant can now produce electricity in the same cost range per kilowatthour as a coal-fired, or nuclear power plant, as shown in the following table.

Fuel Comparisons – New Power Plants

Plant Type	Cost Ecucents*/kwh	
Nuclear	4 - 8.4	
Wind	3.5 - 7.5	
Coal	5 - 9.1	*one Ecucent is approxi-
Gas	3 - 3.8	mately equal to one US cent.

So there is no longer any reason for nuclear or fossil fuel proponents to claim that renewable energy is 'too expensive' — it's not.



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Consumer surveys show that 70 to 80 per cent of Europeans support wind energy, about five to ten per cent oppose it, and the rest have no view. Dr Mays believes that the best way for European governments to meet Kyoto gas reduction targets while promoting wind energy is to set binding national targets or 'percentage obligations' on electricity utilities, with the cost spread over all consumers (not just those who choose to buy Green power). If this percentage is gradually increased, and the Danish model is adopted (national targets are passed down to the local level for implementing), Dr Mays believes that 45,000 megawatts of wind power (25 per cent of Europe's needs) could be generated by 2020, with a 50/50 mixture of land-based and offshore wind farms.

Europe's largest solar power station

In southern Italy, the Serre solar power plant generates 3.3 megawatts of electricity. That's enough to power about 1000 homes. ENEL, the Italian national electricity authority, has operated the plant with great success since 1995. In fact its operating results are the best of any solar power plant in the world.

ENEL have studied the performance of 22 solar power plants worldwide, varying in capacity from 100 kilowatts to their own 3.3 megawatt plant. They are also collaborating with Japanese and Chinese researchers on the so-called VLSPV programme — a far-sighted plan to build a Very Large Scale PhotoVoltaic power plant in western China. Such a plant could be in the range of 100 megawatts to 3 gigawatts!

Worldwide Wind Scene

Paul Gipe is a US writer and advocate of wind power who lives near America's biggest wind farms at Tehachapi in California. He has worked with wind energy since 1976 and is the author of the popular book, *Wind Power For Home And Business* (Chelsea Green, 1993), and *Wind Energy Comes of Age* (1995). His experience with wind power ranges from measuring wind resources to installing residential wind turbines. His lively talk really engaged the audience.

Paul's figures show that Germany and Denmark continue to dominate the worldwide wind power scene. In

1997 alone Germany installed a whopping 530 megawatts of wind capacity, to a tally of more than 2000 megawatts, which is a quarter more than California — the "one-time wind powerhouse". Two-thirds of German wind farms are owned by farmers, or co-operatives of farmers.

In 1998 Danish wind turbines will generate about 7.5 per cent of the country's power, and installations continue to grow at staggering rates. In the lead up to the Kyoto conference last year, Denmark's Energy Minister, Sven Auken, announced that "Denmark's gift to the world is to meet 50 per cent of its electricity needs with wind energy by 2030". Spain is now the world's third-largest wind market, and even nuclear-dominated France is making progress towards its target of 250 megawatts of wind power by 2005. This contrasts with a decline in US capacity by 22 megawatts to 1592 megawatts. But what Paul calls the "US wind rush of 99" is about to begin. More than 500 megawatts of wind capacity, worth US\$500 million, are due for installation during 1998 in the US — Minnesota and Iowa are the target regions. And California's aging and 'dead' turbines may be the focus of a serious repowering program.

• *All these facts and figures above emerged in about one day of the World Renewable Energy Congress. 'Earth Garden' will publish part two of this article in the next issue's 'solar special' issue, with special emphasis on world solar trends.*

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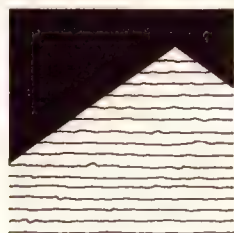
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Earth People Write continued from page 7

A great lighting unit

Dear Alan,

Although our property is small, we have still managed to apply the basic principles of self-sufficiency combined with environmental care. We devour EG on its immediate release, scouring every idea in each article, and scan the advertisements for products applicable and useful to our particular setup. So you can imagine our delight when we came across an innovative 12-volt lighting unit in one of your recent editions (EG 103, page 17). We have bought and tried various different low-voltage systems in the past, but disappointingly found them to be inefficient and costly (particularly to replace a tube). Not only are these lights adaptable to our solar power system, but they are extremely effective.

Thanks again *Earth Garden* for exposing just the right product and appliance for our requirements. Keep up the good work.

Rob Price, Booral, Qld.

Moving fruit trees

Dear Alan,

Some readers may be interested in hearing of my success in moving larger fruit trees out of the way while building. I usually try for an Autumn move. I use a chainsaw to prune the tree to the larger limbs. Using a backhoe or bobcat, (there's usually one on the site for preparing foundations), I loosen the soil to free a large root-ball. I noose the tree with a padded rope sling, and move it to a trailer for long-distance transplanting.

Preparation of the new position for the tree is important. It's easy with a machine, but harder by hand. The hole should be larger than the root-ball and loosened by crowbar. Water well for at least half a day, and make a bed of compost. Place the tree and root-ball in it, and backfill around firmly. My first mature apple tree, flowered and bore apples that season! I will be doing another apple and apricot tree transplant soon.

Gustav Cole, Healesville, Vic.

Ads for excess produce?

Dear Judith and Alan,

I am one of the 'grey nomads' who wander this country, which I love passionately. For many years I have been used to consuming organically grown good foods.

In my motorhome I carry a supply of grains, nuts and dehydrated food. However I do miss fresh fruit and vegetables grown without 'you know what'. Being a WWOOFer, I can boast of many wonderful experiences and good food feasts, but farms on the WWOOF trail can be some distance apart when travelling. There must have been many times when I have driven through an area where an Earth Gardener would be pleased to sell some excess from their patch.

How about a spot in your unclassifieds, or a quarter page where those who would like to make money from their garden, could do so with little advertising outlay? The ads could simply be broken into states, town and telephone number. I hope you get a flood of letters aimed at your wonderful magazine.

Nomad Don, no fixed address.

Alternatives to sugar cane

Dear Alan and Judith,

Just a line to express my admiration for your terrific magazine and to all of those that contribute the information in it. Hope that the recent bushfires in Trentham did not do you any damage — though it will be an interesting exercise watching all the regeneration in the area.

I am interested in finding anyone who knows how to make a sugar-like product from alternative sources, for example, sugar beets and the like. Don't think I can grow sugar cane here in south-eastern Victoria (Somerville). There must be other things to use other than honey!

Ann-Marie Bolitho, Somerville, Vic.

Next to the ocean

Dear EG,

Just writing to let you know I've moved to Port Hedland, Western Australia. I'll need a jackhammer and a flood to grow anything up here, but I'll try! Good old no-dig gardening should do the trick. Sadly the house I left now has a multitude of bulbs popping up in the front garden which I won't see. I hope someone appreciates them! I went to buy some more but nearly died at the price up here in a hardware store. Never mind, being 100 metres from the ocean will make up for it! The fishing's great, maybe I could resort to eating seaweed! Keep on writing, my favourite magazine.

Andrea Rasmussen, Port Hedland, WA.

Gobble this information

Dear Earth Garden,

Absolutely loved the article 'Fruit for the gleaner' (EG 104, page 12). I've been doing it for years and have made so much

jam, jelly, chutney and the like for next to nothing.

With regards Karen M. Lord's query about turkeys ('No information is a turkey', EPW, EG 103, page 4), there is a magazine called *Australasian Poultry* (\$4.80 at newsagents or \$27 subscription per year).

Vicki Judd, Boronia, Vic.

Readying for a new venture

Dear Judith & Alan,

We are nearing the end of a long-term lease on the management of our caravan park, which is on Crown land. The local council will soon take over and we will be on the move. Hopefully we will have found another business to operate. In the meantime, my method of coping with the uncertainty is to read old copies of EG and plan and dream of our future home. To look forward with a positive outlook makes all sorts of things possible. In 1992, I was struggling with city living in Melbourne and took part in Bob Rich's mudbrick building course through TAFE. What fun it was, and I thank Bob and my classmates for revealing so many options to me. I need all these skills now to force the motivation to move out of this, our home of nearly five years, and on to a new venture. Best of luck to you all. I will let you know when we have a new address so our copy of EG will find us.

Judy & Wayne Tomlinson, North Beach Caravan Park, Mylestom, NSW.

What are the issues around MOs?

Dear Earth Garden and readers,

My friends and I are interested in buying land together in the Hunter and central coast area of New South Wales, and forming an MO (multiple occupancy) community. We're right at the beginning, and are hoping you or your readers might have some advice or experiences to share that could help short cut our research. We were wondering if EG could please run an article about the legal issues and typical council requirements that MO groups have to satisfy. We believe there are very new title laws which make it easier to set up, but haven't any details yet. We're also keen to talk to others interested in setting up communities in this area. In particular we were wondering if others have approached the Hunter councils for their position on MOs, or asked permission to build with strawbale, mud or rammed earth?

Information from EG readers in other areas would be valuable too, because then we could offer our own council evidence of acceptance by other local governments.

Finally, can anyone tell us if there are any more flexible banks in terms of housing loans for projects like ours? Thanks for continuing to produce such an invaluable magazine and making this kind of networking possible.

Karlee Burgess, 31 Swan Street, Newcastle, NSW, 2300.

Termites, lantana and verandah boards

Dear Alan,

I've often read requests in EG for information on termite control. We recently came across a wonderful book in our local library which I would like to recommend to readers. It's called *Building Out Termites* by Robert Verkerk (Pluto Press, Sydney, 1990). This book tells you all you could possibly need to know about protecting your house from termite attack without using poisonous chemicals. It would make a good addition to The Good Life Book Club catalogue too.

There have been a few letters over the last couple of years asking for advice on lantana clearing and eradication. We have successfully tackled this problem on our two-hectare property in north-east New South Wales. Lantana grows to a gigantic size in this warm moist climate, and is a serious pest throughout the area.

In EG103 *Jillaroo Farm Hints* (page 58), there is an item, 'Board review', which recommending laying verandah boards bark side up to allow for warping. This is incorrect. They should be laid bark side down because back-cut timber cups away from the heartwood as it dries and shrinks. This is caused by the initial higher moisture content of the sapwood.

Lastly, next time you're talking to Jackie French, would you please ask her how she gets the wallabies and other wild life to agree to leave 10 per cent of the garden produce for her ('The joys of the garden tithing system', EG 94, pages 16 and 17); our wallabies haven't heard of this arrangement!

Laura Fortey, 1316 Nimbin Road, Goolmangar, NSW, 2480.

A Green start in Eastern Europe

Dear EG,

Well we've done it. We've been working here in Ukraine and Russia, saving our money to buy a place back home, when it suddenly dawned on us that we could have a place here in Kiev. We now own what the locals call a *dacha* or Summer house. It's on the outskirts of Kiev city, by a lake and a

forest, so it makes a great getaway. The garden is the traditional Ukrainian 600 square metres and is well-established. (It was planted about 30 years ago.) However it hasn't been touched for the last six years, so there is a lot of work ahead to get it back into shape. We have inherited mature pear, apple and cherry trees, a huge walnut tree, two grape vines, cranberry bushes, blackcurrants (which have of course gone wild), gooseberries, raspberries, strawberries, both cultured and alpine varieties (my favourite) and an assortment of, as yet unidentified, fruit-bearing bushes popular in Eastern Europe, which are smothering the little cottage, and which I will try to tame and identify as the summer progresses. I will also try to tame the local ant and mosquito populations.

We have artesian water supplied to a tap in the garden, and town supply electricity to the two-room cottage — cooking happens in the garden shed where the gas bottle is stored. In the far corner of the garden is the 'long-drop' toilet. I'm looking forward to upgrading to a composting toilet if all goes well. There is also a shower shed with no shower at all, now used for storage. We have to reorganise the shower, but in the meantime good old 'bird baths' (bucket and cup) will suffice, and we can always return to our flat in the city for a hot bath. I think we're absolutely spoiled being able to ease into a Greener lifestyle without giving up the day jobs.

At the moment we both work nine-to-five in Kiev, spend the evenings and weekends at the dacha cleaning and digging, and go home to the flat in the city at night. We hope to have the cottage habitable enough to spend weekend nights there within the next couple of weeks. I'll let you know how it goes over the next few months. In the meantime I'm reading all of my EG back issues for information on toilets, showers, ants and mosquitoes, and will try to write a little more about the Greener side of life in Eastern Europe for you. Thanks again for all of the interesting articles in EG that have helped encourage us to get out and get Green.

Maggie Osgood, Kiev, Ukraine.

PC in climate extremes

Dear folks,

I've just been sent a copy of your magazine. I don't get it regularly and can't get it here. But I am very interested in alternative technology and permaculture. However we have a very different climate in Far East Russia, +35° C in Summer and -30° C in Winter, with six months of frost and

snow. What I want to know, and would like sent to me by e-mail or post, is information, names, addresses, literature and so on that covers permaculture in such climates. I would be extremely grateful for such help because it's terribly hard to find anything here, and poor telephone lines limit my access to the Internet. Best wishes to you and your readers.

Joy McRae, Khabarovsk, Chief Post Office Box 1037, Far East Russia 680000. Email: joymcrae@iname.com

Keep them writing

Dear people,

Thank you for printing such a readable magazine, I love it. I haven't laughed so much for so long now, as when I read Michael Uniacke's 'At Least We've Started' in EG 104 ('Me and my URL', page 55) and I came to his last sentence, "And I bet he's tall, dark and handsome."! Just what I needed. Thank you! You have a wonderful artist on your staff who does the cartooning also. Keep it up. Keep Michael up to writing also please; he and Jackie do a wonderful job of reaching out to their readers.

Name and address supplied, NSW.

All is neat at Riddells Creek

Dear Earth Garden,

We have recently moved from Sunbury, Victoria, to five acres at Riddells Creek, and enjoy the warmth of a house which faces due north, with large living area windows to match! We also live in hopes that our large dam will one day fill, and with water tanks, provide most of our water needs. Bruce is quite sure, too, that a wind generator is a requirement further down the track as there is no shortage of wind here. Our native-tree planting exercises have been hampered somewhat by lack of rain and the pruning done by a resident hare, but we are persisting! Thanks once again for a very useful publication.

Tricia and Bruce Palamountain, Riddells Creek, Vic.

Masanobu Fukuoka farms

Dear Earth Garden,

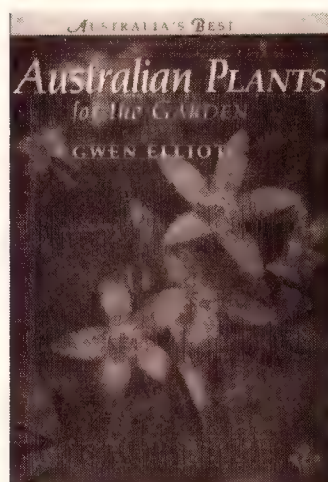
I wish to know anyone in Australia who has worked on Masanobu Fukuoka's farm in Japan? I'm also looking for farms run by people in Australia who have been inspired after working with Masanobu Fukuoka. So far, the WWOOF organisation has been unable to help me.

Ingrid Hillman, PO Box 316, Belgrave, Vic, 3160.

EARTH GARDEN REVIEWS

BOOKS AND MUSIC

Edited by Judith Gray



Australian Plants for the Garden by Gwen Elliot.

**Published by Hyland House.
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Gwen Elliot is my star. She knows absolutely everything there is to know about growing natives, all around Australia and she offers sound garden planning advice. This book is beautifully presented and crammed full of hubbie's (Rodger Elliot) detailed photographs. In essence this book is a study of a selection of Australian plants all chosen for their beauty and reliability. Gwen's description of each plant takes the guesswork out of garden design. You will know exactly how each plant will perform.

Gwen hasn't forgotten the beginner and begins with an exten-

sive introduction covering topics such as design and plant combinations, plants for cottage gardens, growing plants in containers and general maintenance. If you are interested in growing natives for cut flowers this book is a must. I have always wondered why my boronia grows so well in so much shade. Gwen explains they enjoy a cool roof system. There are over 100 species and some will grow happily in no direct sunlight at all. It would seem that a good mulching wouldn't go astray. This is a Hyland House 'best garden guide' and definitely wins the bargain of the month award.

Making It Happen **How 25 rural women turned ideas into businesses.**

**Edited by Maureen Walsh-
Martin.**

**Published by Scribe
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pages.**

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The thing that really stands out about this book is the diverse range of businesses that have grown out of individual women's personal interests. Australia's rural women are ingenious when it comes to overcoming problems such as distance from markets and isolation from services. Many people dream of turning a hobby into a money-making venture. This book shows how it can be done.

Maureen has interviewed 25 women to find out where their ideas

came from and what were the initial steps to get their businesses rolling. Many of the women developed a whole new range of skills as they created entirely new businesses from scratch. It makes a fascinating read and you can't help but feel inspired by the stories these women have to tell. Val Bray wanted a change from the public service so she turned her hand to bee keeping. Lynne Bullen runs a tourist maze and caf after leaving her hospital cleaning job. Cicely Fenton started planting trees on their hot dry property 25 years ago when it was "way-out". Now their property is open for farm forestry and educational tours. Try biodynamic ice-cream, cut flowers, herb farming, pottery and quilt-making, to name just a few ideas.

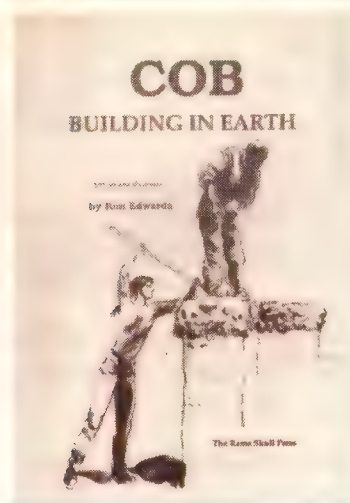
Maureen has included an excellent resource chapter which covers business services, education and training as well as support groups. This book is a must read for anyone planning the big move to their dream block.

Cob — Building in Earth **Written & illustrated by Ron Edwards**

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Ron Edwards and his wife had what must have been a magical mystery tour around Devon in England to find information for this book. Lead



by a string of coincidences and lots of welcoming English cobbers, Ron has been able to piece together what is truly a fascinating look at cob — then and now.

If you like Ron's bush craft series, you will love his cob book. Ron uses his simple line illustrations, along with anecdotal information to create a wonderfully practical manual on building with cob (that is, form-it-as-you-go mud!).

Ron looks at all aspects of building, from foundations to roofing. Recipes for mud mixes, renders, flooring techniques and finishes are studied. The construction of roof frames with wooden pegs and repairing old walls are important heritage issues in England today. Many people are dedicated to protecting their ancient cob buildings. Ron was lucky enough to meet and learn from some of them.

Traditionally, cob was a building material for the poor. People who built in cob were called cobbers. Cobbers (being poor) could not afford to pay people to help them. If a building had to go up in a hurry they would have to ask friends to help. Ron suggests that perhaps this is where the old Australian term for a friend comes from, "Thanks for your help cobber!"

Ron has approached this book with the intention of taking the best of an ancient skill and translating it into a workable form for Australian builders (or should I say for his Australian cobbers). Ron has made many detailed drawings of old tools and he describes how they were made and used. He obviously loves old skills such as cob building and is dedi-

cated to passing on traditional methods and attitudes to building. This book is a must for any potential earth builder.

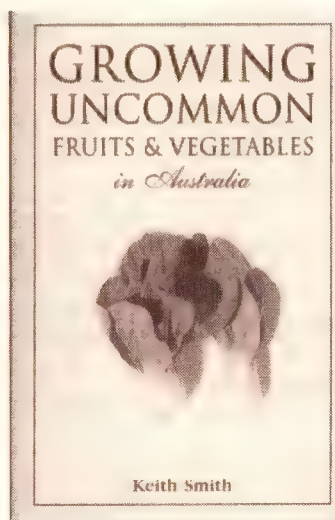
Growing Uncommon Fruits & Vegetables in Australia
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Have you every been into an Asian market and wondered how all the unusual fruits and vegetables are grown and prepared? Perhaps you remember tasting a pomegranate as a child and would like to grow them yourself. Here is your practical guide. This book is about expanding your gardening experience and developing your taste buds at the same time.



Keith, who of course, was *Earth Garden's* founding editor, has selected over 150 varieties of fruit and vegetables and starts by dividing them into their geographical origins: Africa, the Americas, Asia, Australia, Europe and Western Asia. Each plant is described in detail, including how to grow and prepare them. For the ornamental gardener like myself, Keith's descriptions of foliage and form are an inspiration. The productive garden is a beautiful place, and a design challenge.

This book is a lovely combination of practical advice with stylish

illustrations and layout. Each plant description is accompanied by a beautiful line drawing and the pages are easy to read. Keith has obviously enjoyed doing the research for his book and this shines through the text. He has taken a broad look at the history of growing foods, and it is a very pleasurable read indeed.

Did you know that in the 16th Century the Aztecs were forbidden by the Spanish from growing their staple crop amaranth? Spanish priests saw the use of amaranth in religious festivals as blasphemy. To enforce their edict the Spanish cut off the hands of those who ate it. Needless to say amaranth was grown in secret and survives as a popular crop in Mexico today.

Imagine how European kitchen gardens changed after Christopher Columbus 'discovered' the New World. Cabbages, leek and onions sound very boring without the new found tomatoes, corn, beans and potatoes!

If you love growing food and beautiful plants, this book is a must for your library.

The Wilderness Society 1999
Australian Landscape
Calendar

Full colour

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(1800) 035 354.

It's that time of year again. Looking for stocking fillers? Here is the perfect suggestion. Help save wilderness while improving a friend's office environment.

These photographs are in classic Wilderness Society style – magical. A moment's glance and you are drawn back to enjoy the serene beauty of some of Australia's unique places. Each month shows the moon cycles and any major dates to remember. Like on 18 March, 1995, there were 5000 people marching in Hobart against native forest woodchipping. Thanks for reminding us guys!

Calendars are available from The Wilderness Society by mail order.

Natural Health News



NHN is a regular feature in *Earth Garden*. These days it's hard to keep abreast of developments, ideas and theories in natural health. We'll bring you reports of new research, old ideas which have resurfaced, and tips for leading a healthier lifestyle.

Snoring A Health Hazard

If you know someone who regularly snores, or makes snorting, choking or gasping noises during sleep, don't be annoyed, be worried. Sufferers could be at risk of a heart attack, according to research presented at the 11th annual Scientific Meeting of the Australasian Sleep Association in Sydney. Thousands of Australians suffer from sleep apnoea, a disorder that can cause sufferers to stop breathing for as long as ten seconds. In the worst cases this can occur hundreds of times a night. A huge increase in sleep clinics in public and private hospitals, where sufferers can be tested, attests to the increased recognition of the problem. The president of the Australasian Sleep Association, Dr John Wheatley, said the disorder has long been associated with cardio-vascular problems, but doctors have disagreed over whether the link was direct.

"People with sleep apnoea actually stop breathing for a short time," Dr Wheatley said. "When breathing stops, the heart rate slows dramatically. When breathing starts again, the heart rate speeds up dramatically because the body hasn't received the oxygen it needs. Studies are showing that these increases and decreases in heart rate can cause serious damage to the heart muscle." He said research showed a greatly increased risk of heart attack. Other data also indicated a strong, direct link between sleep apnoea and high blood pressure. Dr Wheatley, a director of Sydney's Westmead Hospital's department of respiratory medicine, said sleep apnoea was very prevalent but could be effectively treated.

Alcohol Bad For Conception

Women who are trying to get pregnant should turn tee-total and avoid alcohol, doctors said recently. The advice followed a Danish study that showed for the first time that even very moderate drinking can reduce a woman's chances of conceiving. Even women who drank less than five units of alcohol a week — equivalent to five small glasses of wine — were affected. Writing in the *British Medical Journal*, the team led by Dr Tina Kold Jensen said: "It seems reasonable to encourage women to avoid intake of alcohol when they are trying to become pregnant." The researchers studied 430 Danish couples aged 20 to 35 who were trying to conceive for the first time.

— *Sunday Age*

Alcohol Good For Health?

People who drink alcohol in moderation enjoy better health than those who do not drink, research says. Higher rates of ill health were recorded among non-drinkers and heavy drinkers, a survey of

9605 people aged 33 years in Britain has found. Doctors found that by the age of 33 the link between drinking and ill health had been established, according to research published in *The Lancet*. Dr Chris Power, co-author of the report, said: "It might be that drinking one to two glasses of wine a day does help protect against illness. It could be that those who do not drink have worse health because they have a medical condition which prevents them from consuming alcohol. The poorer health of non-drinkers is not because they drank too much in the past and had to give up. We're talking about a very young age group — 33 — and it could be that drinking up to two glasses of alcohol a day can actually protect them."

The study classified 'light drinkers' as those consuming 0 to 5 units a week for women, and 0 to 10 units for men. Heavy drinkers were women consuming more than 20 units a week, and men more than 35.

Babies Go Home

The number of caesarean births performed by several hospitals in the Boston area has been significantly lowered, using a simple approach. When a woman arrives in labour, they send her back home to wait — unless contractions are strong and the womb is opening. Hospitals and obstetricians had recognised that the rates of caesarean deliveries had soared in the United States, from five per cent in the 1970s to 25 per cent in the 1990s. Part of that reflected a trend to over hospitalisation, *The Boston Globe* reports. Researchers found that when a woman arrived in early labour, there was a tendency to 'do something' — often meaning a caesarean. But by sending home women who are in the early stages, the Massachusetts hospitals have lowered their caesarean rate from 26 per cent to 20 per cent, with no decline in healthy deliveries.

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The deadline for the March issue is 1 February.



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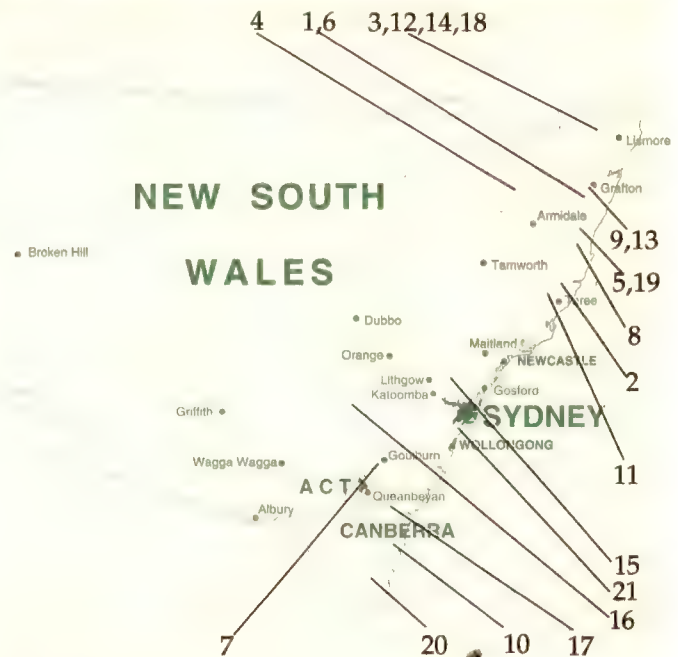
14. FAR NORTH COAST. 35km n.w. Lismore. Beautiful solid spacious home. Wide verandahs. Elevated position, extensive views. 4 acres, u/house garage and workshop. Organic gardens. F/trees, complete privacy, power, telephone, cabin, u/cover caravan, school buses. \$159,000. Ph. (02) 6633 7033.

15. CATTAL. Acres — 25, Hawkesbury area, ideal tourism, bushwalking. Mountain views, caves, wildflowers. 3 bedroom B.V. home plus separate large B.V. shop. Shop 1. is approx 48' x 24'. Coolroom, storage area, kitchen, reverse airconditioning and fans. Dining area is approx. 16' x 24', wood fire. Shop 2 is approx. 12' x 24'. Verandah on three sides, large parking area, 3 toilets. 30 min. Dural and Castle Hill, 2 km to golfcourse. This property would suit Arts-Crafts-Workshops-Coffee Shop-Bushwalking and Nature studies. Asking price \$339,000. Ph. (02) 4572 8511 any time for more details.

16. COWRA. 3 km from P.O. 22 squares mudbrick/Hardiplank, energy efficient house. 3 bedrooms, one with ensuite, suitable for B & B. Set in one acre, low maintenance secluded garden. \$150,000. Adjacent 5 acres with town water \$60,000. Price negotiable for both as one lot. Ph. (02) 6342 3660.

17. BRAIDWOOD. Friendly country town 87 km to ACT, 70 km Bateman's Bay. On the outskirts of town just a few kilometres from town centre. Lovingly looked after and well maintained. Two bedroom plus sunroom. Very warm home with large sunny kitchen. Attractive established garden, double garage and rear. Access to stable and yard. Perfect for your pony or veg. garden. Many extras. Ph (02) 4842 2409 or PO Box 171.

18. PERMACULTURE PARADISE. North Coast, Nimbin. 1/12 share on community, 2.7 km from town. 2 timber houses



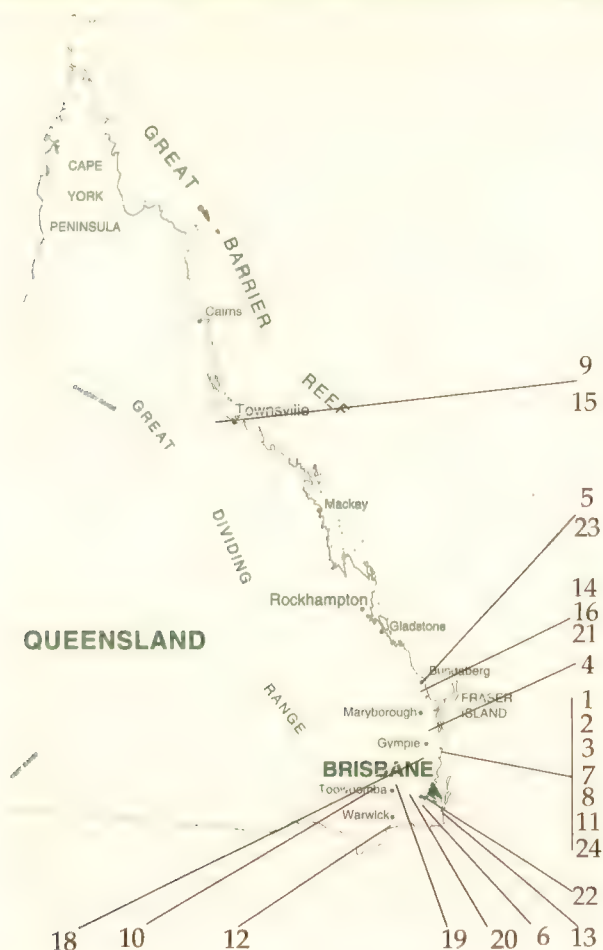
— open plan, loft and verandahs overlooking beautiful Nimbin Valley. Naturally landscaped gardens filled with an abundance of plant species, 100's of palms, natives plus bamboos, ponds plus veg garden. 500 plus 1000 gal tanks, 2 nurseries, good access. Community has common orchards, spring fed dams, laundry and workshop facilities. \$80,000 ono. Ph. (02) 6688 2381 Andi.

19. BELLINGEN/THORA. \$83,000. Magnificent 55-acre organic property. BFA certified A Grade. Chemical free — 20 years. Council-approved multiple occupancy. 1/4 share. Unfinished solar passive mudbrick house, caravan, on beautiful Bellingen River overlooking magnificent forested National Park. Share includes one acre private use, fertile shared acres, irrigation, orchard, tractor, slasher. Builder living on property. Excellent co-shareholders. Very close Steiner, state schools, World Heritage Rainforest. Town bus. Winter sun, summer breeze. Price includes flooring, extra mudbricks. A stunning place! Paul, Box 447, Bellingen, 2454.

20. BEGA VALLEY 100 acres. Mountain retreat. Comfortable cabin, phone, hydro power, permanent creek, established nut trees, 5 paddocks, good access, tree ferns and tall timbers, adjoining National Park. \$110,000. Ph. (02) 6493 0330.

21. INSTANT CO-HOUSING COMPLEX of 16 houses on strata plan. For sale now. Adjacent to bush and George's River in Sydney's South. Permie neighbours and future eco-village. Great opportunity. P O Box 33, Oyster Bay, NSW 2225. Ph/Fax (02) 9528 8614.

22. FOR SALE. 1/6th share in 100 acres M. O. Christian Community. Lovely 3 b/r stone/besser house with lovely gardens, BBQ area, machinery shed, generator, solar system, woodfire/potbelly, S/C stove, vegie garden, enclosures, chook pen, big dam for swimming, fenced in yard for kids, good access, phone. Asking \$160,000. Ph. (02) 4457 3338 after 6 pm. Ask for Ron.



QUEENSLAND

1. NOOSA. 30 minutes. Semi-tropical 5 acre share bordered by creeks and state forest. Abundant birdlife. 2 b/r timber cottage. Wide verandah overlooks gardens. Solar power, gas, phone, rainwater. School bus. Secluded paradise includes 20' c/van. 10 km N of Nambour. \$92,000 Ph (07) 5441 4336 or (07) 5446 8685.

2. NOOSA HINTERLAND - KIN KIN. 2 blocks, 25 acres, spring-fed dam, machinery shed, remnant rainforest. 10 acres, dam, shop and school nearby. 25 acres \$120,000. 10 acres \$86,000. (07) 3203 0329.

3. BEACHMERE. 1/4 ac. in quiet backwater. Ornate 3 bed dome home close to beach, highly economical, energy efficient. Structurally sound. Unusually beautiful. 20 mins. major shops, 40 mins. Nth Coast or Brisbane. Ph Simon 0417 629 010.

4. 295 ACRES ON THE MARY RIVER. 1/2 hour south of Maryborough. All weather road. Great river views. Plenty of trees - spotted gum. 9 x 4m shed with 10,000 gal rain water tank. Fully fenced with 3 dams. \$170,000 ONO. Ph. (07) 4775 2365 or write to G. Sim, 42 Marks St, Townsville, 4812.

5. BAFFEL CREEK, NORTH OF BUNDABERG. 45 acres of tropical, potential beautiful, unspoilt, semi-secluded, idyllic, warm, peaceful, hideaway, and yet has all facilities needed in area — school, shop, etc. Near Rules Beach, rectangular block with

cleared, defined straight boundaries. Water course through middle. Slope from front up to back with lovely house site near tall gums. Area rich for growing; sandy loam. Biggest Macadamia nut farm in Australia end of road. Lots of mangoes, lychees, paw paw, palms, barramundi fishing, reef fishing. Few places left on East Coast like this. Same type of land in area, same road selling up to \$85,000. We are reluctant, genuine sellers at \$45,000. More details phone Peter (07) 5447 9030.

6. JIMBOOMBA. 15 acres virgin bush, house site, dam, shed 20' x 30'. Absolutely private. 5 min supermarket, school, 45 min Brisbane. Vendors terms available \$90,000 O.N.O. A/H (07) 5543 1462

7. SUNSHINE COAST HINTERLAND. Amamoor Century-old Queensland colonial. 3 bedrooms and study. Ornamental ceilings, arches, french doors. Steel stumps, near new roof, wood stove, large verandahs. 40' x 20' powered garage/workshop. All on 4 sloping well treed acres in hills of lovely Mary Valley. Close store, P.O., petrol. Sealed roads, school bus. Easy distance Gympie, Noosa, Eumundi markets, Fraser Island, etc. 110 mins Brisbane, Airport. Small irrigated Protea plantation, patch rainforest. 4 tanks plus borewater. Reasonable rates. Inclusions: Quad & trailer, ride-on mower, brushcutter and more. \$190,000. Phone (07) 5484 3131.

8. AQUACULTURE. Sunshine Coast, lifestyle plus income on unique two acre avocado & licensed "new-tech" enviro friendly aquaculture farm, (see Earth Garden #95, March '96 or our web site www.ozmail.com.au/~raedavid). Room to expand current Barramundi production, will train if required. 10 min Nambour, 45 min Noosa, 60 min to Brisbane. Shops, schools, university, the beach are all close at hand. Situated on a busy tourism circuit the location provides many opportunities. Welcoming, professionally built pole home, open plan kitchen/dining/family area, large verandahs, three bedrooms, wood fire, bore. \$268,000. For additional details contact David or Sue on (07) 5445 7381 or davidrae@squirrel.com.au

9. TROPICAL MOUNTAIN RETREAT, NTH QLD. 2 hrs from Townsville. 3 bedroom, beautifully finished brick veneer house, 19x19m with verandahs on two sides. Large kitchen with Raeburn stove. Large lounge & dining sep. family with 3/4 pool table. Large shed, bush house, water tanks, electric fencing, power, telephone. Set amongst 20ha open forest near Mount Fox. 2ha cleared & irrigated with macadamia plus other mixed fruit & nut trees. \$189,000. Phone (07) 4777 5164, e-mail Marstream@bigpond.com



10. TARA (60KM W DALBY) 49 acre b/block, large dam, perfect for first time owner builder, large ironbarks, 20 min from amenities, secluded, wildlife, birds. \$16,500. Phone owner (0412) 576 942.

11. TRAVESTON, 1/2 HOUR FROM NOOSA. Beautiful 14 acre property, bush and clear. Huge stocked dam, power and phone. 12x6 liveable shed. Gas, H/W and stove. 150 fruit trees, fenced and landscaped. Herb farm setup potential income. Just needs owner's choice of home. \$135,000, will consider land trade to \$80,000 + diff. 80-150 acres in Tasmania. Ph. (07) 5485 1462.

12. MUDBRICK HOME, solar-powered, on shared property near Warwick. Rent \$80 pw plus gas. Future option of purchase, perm.creek, all-weather road, lush valley. No pets. (07) 4666 1102.

13. SOUTH EAST QLD, mins Tamborine rainforests. Unique dbl brick/log home on 4.1 ac. secluded tranquil setting. 2 dbl B/rs plus huge wood lined loft, floor area 21' x 12' plus truly ample storage, large Nth window and attractive balustrade. Dining with fireplace. Beaut new sap-edge timber kitchen, pull-out shelving, breakfast bar and extra work top. Lounge, Jontul 'System 80' fireplace, 10' brick surround, log storage and hearth in conversation pit, with seating step. Cathedral ceiling with large hailproof skylight 3' x 3'. 8' SDs & bay window. Hall 22'. 3 skylights, 8' SDs and writing nook. Berber carpets, slate floors and ceiling fans throughout. Bath, sep. toilet, laun. Variety young f/trees, many valuable flowering trees, shrubs, etc. Two 10' x 10' garden sheds, cement floors. Garden flush toilet (brick), brick pumphouse/firewood storage. 7 water tanks over 25,000 gals plus 2 dams with excel. bore, with solar pump and panels. Indust. type colourbond 3 car garage (11 x 7m). Power and workbench. Also brick and tile dbl garage, 3 large windows and personal door. Photos available. Ph. (07) 5543 6196 or (07) 4683 3378 evenings.

14. GINGIN, 25 km, 310 acres, 3 titles. \$115,000. part of Mt Perry Ranges. Dams, lots of building timber, rock; creek, seclusion. Ph. (07) 4157 6001 (07) 4157 2237.

15. BLUEWATER. 1-1/4 acres, 25 mins from Townsville, university, N.Qld. 3km from beach, school, shop, PO. Beautifully renovated Queenslander, timber construction on steel stumps, cyclone coded, new shed. 2 large bedrooms, study, sleepout, high ceilings, fans throughout. Designed for the tropics. Fenced, vegie patch, chookpen, paddock, good soil, creek frontage - floodfree. Bitumen road, town water, power, School bus, mail to gate. Fruit. \$122,000. Ph. (07) 4788 6383.

16. 1/3 SHARE 1000 ACRES. Complete multi-creek catchment, no upstream neighbours. High & low country. Rainforest merging with bushland. Sub-tropical all-year growing. Adjacent State forest. Fantastic views, multiple homesites. School bus, postal service & power at front. Mt. Perry 1/2 hour. A nature lover's dream. 1/3 share \$35,000. Tim Daley, P.O Box 110, Gin Gin, 4671.

17. EXPERIENCE REAL RURAL LIFESTYLE. 354 freehold acres, only 7 kilometres prosperous country township, Miles. Timbered, well shaped land for maximum privacy. High homesite and good area for waterhole. \$28,750. (07) 4163 3044.

18. 8 ACRES NATURE RETREAT. 24 kilometres Nanango township. Bird and animal life along bush tracks under tree canopy of vine scrub. Borders 5000 acres attractive state forest. Secluded, end of road location. Very high level homesite \$24,950. (07) 4163 3044.

19. SECLUDED 320 FH ACRES. 15 mins from Cooyar. Working farm with large comfortable home, sheds, yards. Good water. 70 plus acres cultivation — suits grazing/horticulture. \$285,000. Two deeds — will sell separately. (07) 4164 6157 after 7pm.

20. GATTON, 5 ACRES. 90km west of Brisbane, agricultural university town, 4 bedroom, ensuite to main, brick hardiplank external, pine inside, built-ins, ceiling fans, slow combustion heater, glass electric cooktop & oven, kitchen family areas open onto external paved entertaining area, gas BBQ, 12m inground pool, sand filter, solar heated. Close to schools, town water plus 45,000L concrete tanks, weekly recycling and wheeliebin pickups. Large dam, electric pump, underground irrigation to orchard and landscaped gardens. Plenty native birds, animals. Fenced paddock pony. Separate 54m2 office granny flat, carpeted, airconditioned. Carport, garden sheds. \$215,000. Ph. (07) 5462 5462

21. PERFECT FOR PERMACULTURE. 19 Km Gin Gin, one hour Bundaberg. 3 yr old all electric 3 b/r home, all with built-in robes. Open plan kitchen, dining, lounge. Polished Cyprus pine floors, tile bathroom, toilet, laundry. Combustion heating stove, 5 ceiling fans, composting toilet. High blocked front with lovely outlook from balcony over parklike grounds and two dams. Workshop under with space for two cars. Easy ramp at back giving access to well established organic vegie garden. Three 5 thousand gallon aquaplate tanks, two with rainwater, one filled from dam with fire pump. Reticulated pipe lines to well established landscaped gardens, fruit trees, flowering trees. All this on 25 acres. Part fenced block. School bus and mail delivery at gate. \$100,000 reduced from \$120,000 for quick sale. Ph. (07) 4157 6596.

22. FERNVALE, BRISBANE VALLEY. 25 mins Ipswich, near Lake Wivenhoe recreational areas. You can live comfortably in completed first stage 2 bedroom mud-brick home while completing second stage at your own pace. Business takes us to Brisbane away from peace and tranquillity. Established hilltop 1.7 ha plus property, red soil, natural bush, fruit trees, natives, fenced paddock, dam, large workshop, separate 5-car accommodation plus office — suit tradesman. School bus at door. Architect's plans, extension slab laid, electricity, phone, Eurolec gas stove, slate floors, comfortable home. Priced to sell at \$95,000. Phone owner Brisbane (07) 3892 3853.

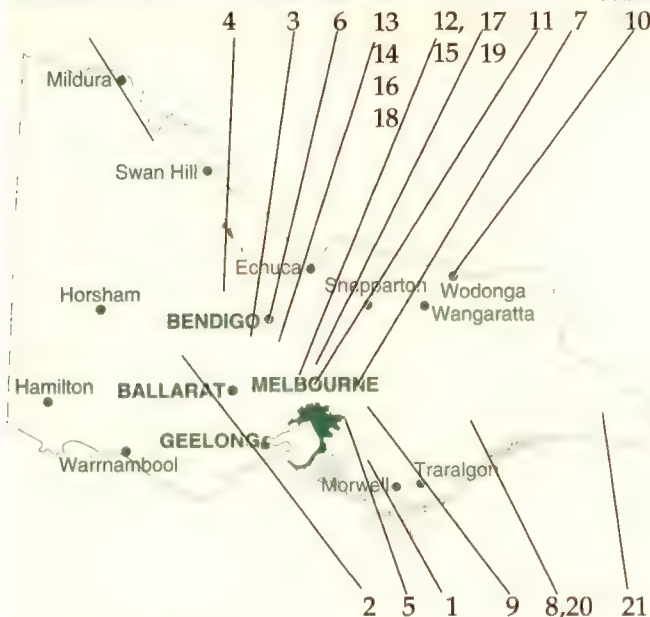
23. BUNDABERG (INNES PARK). 1/3 ac. Permaculture/Rhode Island 2B/R Passive Solar \$165,000 Eco RE Aus Patty (02) 9528 8614 www.eco.com.au

24. NOOSA (COOROY). 8ha cleared house site, liveable studio/shed, WC bathroom, phone, power, tanks, dam, rainforest views, birds. \$180,000 Eco RE Aus Patty (02) 9528 8614.

VICTORIA

1. NOOJEE AREA. El Nino proof. 40 km north from Warragul. 5 fenced cleared acres. 3 bedroom house, permanent river, picturesque, wooded hillsides around. Under 2 hours Melbourne centre. Electricity, tank water or pump from river, chocolate soil. Weekender or permanent. \$160,000. Phone (03) 9486 1183.

2. MUDBRICK COTTAGE, double storey, 4 acres, 2 bedrooms, alternative power, orchard, dam. Landsborough \$42,000. (03) 5472 5014.



3. MALDON. 4-1/2 acres. On edge of town in "The Springs" area, undeveloped block in picturesque location. Undulating land with building permit. Power available. Water access fee paid. \$42,000. (03) 9570 1347.

4. WEDDERBURN. 2 hours NW Melbourne, 50 mins NW Bendigo. Completely renovated 2 bedroom cottage. Beautiful cottage garden. Bull-nosed verandah. Pergola and paved BBQ area. Air conditioner, Coonara, gas outlet, all services. Schools, 2 doctors, wonderful country community. Car-port, tool shed, rain water and town water. Excellent position. Photos available. \$48,000 ono. Phone Anthony (03) 5494 3263.

5. DANDENONGS 40 km from city of Melbourne. Organic farm of 10 acres with 3 bedroom brick house and shedding. In quiet rural, beautiful setting, yet walking distance to Monbulk, a township with excellent primary and secondary schools and all other facilities. The fertile, chemical free soil, with abundant water (from creek, pumped to large dam and via sprinklers available to all parts of the farm), will grow anything. About half the land grows kiwi fruit with a potential gross income of \$45,000 per year. Unfortunately, ill health has destroyed our dream. \$235,000 Reluctant sale. Janet and John (03) 9752 0030.

6. LAND FOR WILDLIFE property, close Bendigo, 20 ac Box-Ironbark woodland. Adjoins Bushland Reserve. All services. Comfortable 3 bdr home features 8 sqm open living. Excellent shedding. Large garden. \$155,000. Details contact Elaine on (03) 5447 9489.

7. YOUNG COUPLE looking for small acreage with creek/dam, dwelling or not, purchase/rent/co-op. Alpine area, Mansfield/Marysville. (03) 9379 7717 (bh).

8. BRIAGOLONG. HOBBY FARM, 2 ACRES. 15 mins Sale and Maffra. 1 hr Lakes Entrance and Dargo. 2-1/2 hrs Dandenong. 3 bedroom 100 yr old restored cottage with 4th bedroom or study. Separate lounge. New kitchen, bathroom and vanity fittings. Leadlight windows and doors, polished baltic pine floors. LPG gas cooker and wood stove. 'Ultimate' wood heater. New roof, insulated. Re-wired, painted inside and out. Town and tank water.

2 acres, fully fenced into 2 paddocks and secure area for animals. Chook and wood sheds. Lock-up shed 12m x 6m. Fruit trees and vegi patches. Zoned cottage industries. Move in, nothing to spend. Short walk to school, shops and pub. Charming and cosy. \$79,500 neg. Ph. (03) 5145 5234. Alan or Daphne.

9. CHARMING COUNTRY COTTAGE at McMahon's Creek. 10 mins. Warburton. 2-1/2 private, landscaped acres. Dam, large shed, post and beam with mud brick infill combining colonial atmosphere with modern amenities. Huge living area. 20' cathedral ceiling. 100 yr old brick floor throughout. Double bedroom, huge loft, family bathroom, laundry. Outdoor living area. Open fire, slow combustion stove, gas hot water. Close to historic Reafon Pub. Work from home, commute, holiday with bush walks, riding, fishing, canoeing at the door. Easy access to skiing and boating. On school bus route, primary and secondary. Building permit and plans to extend to large family home. Extension site already levelled. Vacant possession. Sale due to work commitment. Price \$92,000 Phone (03) 5156 4652

10. NE VICTORIA, 25 mins Albury-Wodonga. Architect designed passive solar house, cathedral ceilings, 3-4 bedrooms. Elevated position, 180° views to Mt. Bogong and Lake Hume. 19 acres, pasture plus some regrowth, established gardens, fruit trees, hundreds of native trees and shrubs. 'Land for Wildlife' status. Abundant water, underground power. Old gold-mining community. \$185,000. (02) 6026 4260. (Owner unavailable Dec 23 — Jan 21).

11. WANDONG DIST. 50 ACRES. Nicely undulating natural bush. Dam, seclusion, power available. \$55,000.

12. LANCEFIELD 5 ACRES. Executive living in bush-like setting. BV homestead, 4 bdrms, WIR, BIRs, ens., spacious living areas, rumpus room. Large deck at rear. Town water. \$187,000.

13. PYALONG 1.5 ACRES. Spacious cedar home of 3 bdrms, open plan living areas, garage/workshop, fuel heater, air cond, large billiard rm. Fruit trees. \$89,000.

14. HEATHCOTE 1 ACRE. Immac. 2 bedrm home in elevated location, BIRs, encl verandah, freshly painted, garage/w-shop, greenhouse, BBQ area, forest views. \$89,000.

15. LANCEFIELD AREA 2.5 ACRES. B/V homestead of 4 bdrms, ensuite, wide verandahs, lge pergola, paved BBQ area. Bush outlook. School bus at gate. \$112,500 From \$12,000 dep.

16. BROADFORD DIST. 75 ACRES. Undulating bush, abundant wildlife, dam, creek. Driveway & house site cleared with fantastic views to Great Dividing Range. Previous building permit granted. \$63,000.

17. STRATH CREEK 168 ACRES. Magnificent views, end of court location, large shed. \$100,000.

18. SEYMOUR 20 ACRES. Spacious ranch style BV home with stunning views to Tallarook Ranges. 4 bdrms, town water, dam, huge shed. \$169,000.

19. STRATH CREEK 51 ACRES. Scenic, part bush, sealed road. Bargain \$49,000 Robert Gordon Real Estate, High St, Wallan Open 7 days 5783 1911, all Hours.

20. BRIAGOLONG. Near Stratford. Friendly diverse community. Many EGers, long history of alternative lifestyles. Lovely bush and wildlife. 5 & 3/4 acres in foothills, partially cleared, next

Freestone Creek. Private, close to school bus. Comfortable 20'x40'x12' zinc shed, fully insulated, plastered, with mezzanine. Includes workshop with external access. Permit to live in shed while building. Current permit, plans for beautiful 20 square mudbrick home, have completed pre-plumbing and slab. Comes as a going concern with \$10,000 fully automated solar system, 10,000g concrete tank with solar pumping, storage shed, separate toilet (septic), dam, some materials, too much to mention. Perfect for EGers wanting to build. \$75,000 ono. Ph. (03) 5145 5240.

21. EAST GIPPSLAND AT ITS BEST. 71 acres in secluded tiny valley only 16 kms from Princes H'way. Forest environment. Birdwatchers paradise. Prolific wildlife. Magnificent views. Total tranquillity. Excellent for wild ginseng and lots else. Good road, soil and rainfall. Spray free history. 10 acres cleared, 2 dams, hayshed, caravan. \$68,000 (03) 5158 8319 after 7 pm.

SOUTH AUSTRALIA

EIGHTY ACRES, ROCKLEIGH, 15 acres heritage listed mallee scrub, 10 acres re-veg, four sheds, two dams. Phone, exc views, close to power. Half an hour (30k) from Mount Barker/Murray Bridge. \$65,000 Ph. (08) 8391 3172.

TASMANIA

1. LAND TASMANIA — HUON VALLEY 30.5 h (75 acres). Beautiful sloping block with frontage to Huon River. Astounding views in all directions. Suit owner builder. Approx half cleared \$60,000 (02) 9436 0005 or (0414) 643 600.

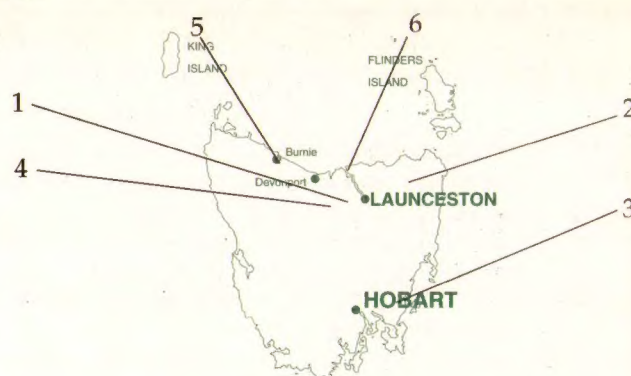
2. FINGAL, NE TASMANIA. 3 bedroom Federation weather-board home. Features: Baltic pine walls, some pressed tin ceilings, combustion & gas cooking, open fires, Tassie Barrel heating. Situated on 3/4 acre, creek & swimming hole 50 ft from back door. Flat block with fruit trees, gardens. Shed, garage, second toilet outside. 35 mins to St. Helens, 1 hr to Launceston, close to Ben Lomond Ski resort & Lake Leake. Abundant fresh & sea water fishing. Doctor in town, primary school 5 mins away, high school bus at front door, shops 3 mins away. \$55,000. contact Rod Rattray on (08) 6376 1592.

3. RURAL BACKPACKER HOSTEL. 3 bedroom manager's house, vegetable garden, sheds, fowl yards, small mixed orchard. 20 bed hostel building plus 6 separate twin rooms. 4.4 ha. Town water and sewerage. Several fenced paddocks for sheep or house cow plus 400 heritage (200 varieties) apple trees. Adjoins coastal reserve. Triabunna, school K-10, medical centre, shops, banking. Close Maria Island National Park ferry. 90Km NE Hobart. \$125,000 neg. Email: roknox@ozmail.com.au Ph. (02) 6241 2201 <http://www.ozmail.com.au/~roknox/welcome.html>

4. 50 ACRE BUSH BLOCK. 2 dams, spring fed creek, bush cabin, phone, good aspect and sheltered, 20 kms. Deloraine, Nth Tas. \$55,000. Ph. (08) 8685 2265.

5. DEVELOPED PROTEA FARM with sea view on 2.8 ha in Burnie, NW coast Tasmania. 3 bedroom brick house adjacent to farm with dual access (1 via private bridge over creek running through property). Excellent business opportunity. Genuine reason for sale \$190,000 negotiable. Ph/fax (03) 6431 8485.

6. NTH TASMANIA, GEORGETOWN, PIPERS RIVER. 30 minutes Launceston. Bush block 70 ac. Cedar clad house, privacy, sea views, power, telephone, spring water. Has sandstone and sand



for crafts. \$115,000 Ph. (03) 6343 2199.

7. NE TAS. Comfortable 3 brm home on 11 acres, elevated position, surrounded by thick forest. Magnificent views, overlooking green valley. Power, phone, HSW, good access, SC stove, rain and spring water supply. Two permanent creeks and river boundary (with good trout fishing). Many walking or riding tracks. \$72,000. Phone owner (Ian) (03) 6353 2483.

FOR RENT / WANTED TO RENT OR HOUSE SWAP

WRITER'S RETREAT just west of Cunningham's Gap offering tranquility, natural beauty, walking tracks, mountain creek. No pets. Single/couple: \$125 pw inc. linen, cleaning, gas, electricity. (07) 4666 1102.

TO RENT, WALLAN, VICTORIA, 40 mins north of Melbourne. We would like to rent our house for 12 months beginning January 1999 to a dedicated organic gardener like myself. 4 bedroom home on 1 acre with beautiful organic garden \$180 per week. P O Box 60, Wallan, 3756. Ph. (03) 5783 2000.

METCALFE. One-two year lease available for permaculture/Land For Wildlife property. Negotiable rent for caring, committed tenants. Ten acres, creek, dam, abundant wildlife. Older home, all utilities. Allan (03) 5423 2228.

CANBERRA Rooms (2) for rent. Join two eccentric, vegetarian, greenies in a great house on 15 acres, on the Murrumbidgee. Lots of water, wildlife, fruit trees, gardens and happy hens. 30 minutes from city centre. \$100 per week. Possible exchange of rent for labour. Ph. (02) 6227 5456.

SYDNEY, OYSTER BAY. Bush setting George's River views, 4 B/R, 2 bath, double garage. \$320 pw. Adjacent to Permaculture neighbours and future Eco-village. P O Box 33, Oyster Bay, 2225. Ph/Fax (02) 9528 8614.

WANTED TO RENT OR HOUSE SWAP. *Earth Garden* publishers, Alan and Judith Gray, would like to rent (or house swap) a furnished house in Broome for three months from May to July 1999. Our house, for swap, is a large, furnished, 3 BR family home approximately one hour from Melbourne. We would like to rent, or house swap, a 3 BR (or more, if possible) Broome home with a garden. Please phone Alan or Judith on (03) 5424 1399, or write to: Alan's Broome daydream, *Earth Garden*, RMB 427 Trentham, 3458, Victoria.

WANTED TO RENT. Self employed person seeks rural house/cottage NSW coast or Blue Mountains in exchange for caretaking, gardening or rent. Russell Ph. (03) 9870 7037.

A selection of sustainable living books available from *Earth Garden*. For the full list of 100 books, see 'The Good Life Book Club' catalogue (available free). Phone The Good Life hotline on: (03) 5424 1814.

Please add postage, and allow 3 weeks for delivery.

1. The Earth Garden Book Of Alternative Energy (176 pages) - \$24.95 (add postage) \$
2. The Earth Builder's Handbook (80 pages) - \$9.95 (add postage) **NZ** \$
3. The Australian Self-Sufficiency Handbook (340 pages) - \$29.95 (add postage) \$
4. Jackie French's Household Herb Book ***NEW*** by Jackie French - \$9.95 (add postage) \$
5. Earth Garden T-shirts SIZES: SM(16), M(20), L(24), XL(28) \$16 (add postage) \$
6. Earth Garden Bib & Brace overalls SIZES: SM(77), M(87), L(97), XL(107) - \$44.95 (add postage) \$
7. Earth Garden Natural Dog Soap - 3 for \$8.95 (add postage) \$
8. Jackie French's Backyard Self-sufficiency - \$16.95 (add postage) \$
9. The Settler's Guide - ~~\$24.95~~ \$19.95 (add postage) \$
10. Earth Garden Building Book - \$35.00 (add postage) \$
11. The Hard Times Handbook \$16.95 (add postage) \$
12. EG Binders (hold 9-12 copies) - \$14 each (add postage) \$
13. The Healthy House Cow - ~~\$18.00~~ ***NOW ONLY \$12.00*** (add postage) \$
14. Jackie French's Companion Planting Guide - \$9.95 (add postage) \$
15. THE LOT: \$285 (Except EG 2,3,10,13-15,25,29,50,68,69 - Out Of Print) **FREE INDEX!** (add postage) \$
16. Single issues: \$4.50 each, or 10 for \$34.95! (Except EG 2,3,10,13-15,25,29,50,68,69 - Out Of Print) \$
17. The Seed Savers' Handbook - \$20.00 (add postage) \$
18. Herbal Harvest - \$95.00 (add postage) \$
19. Jackie French's Chook Book - \$12.95 (add postage) (BACK IN STOCK) \$
20. Organic Gardening in tropical climates - \$12.95 (add postage) \$
21. The Straw Bale House - \$54.95 (add postage) \$
22. Herbal Health - ~~\$19.95~~ ***NOW ONLY \$12.95*** (add postage) \$
23. 2 Minutes a Day for a Greener Planet - ~~\$14.95~~ ***NOW ONLY \$9.95*** (add postage) \$
24. Earth Garden 25 Year Anniversary Enamel Cup - \$8.95 (add postage) \$
25. Warm House Cool House — \$27.50 (add postage) \$
26. The Compleat Earth Garden Index (EGs 1-100) - \$3.95 (add postage) \$
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